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18 April 2000

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, DC 20231

Sir:

Transmitted herewith for filing is:

Inventor:	Harry W. Eberle, III
For:	ANCHORING BISCUIT DEVICE
Attorney Docket No. :	HWE-105C

Enclosed are:

(X) Appeal Brief (Original plus three copies);

(X) Check No. 1158 in the amount of $150.00 to cover the fee for filing an Appeal Brief;

(X) Check No. 1159 in the amount of $130.00 to cover the fee for a Request for Oral Hearing; and,

(X) A certification of mailing by "Express Mail".

Kenneth P. Glynn
Attorney of Record
Reg. No. 26,893

KPG:clp
Enclosures
Via Express Mail RRR No. EK649734992US
cc: Harry W. Eberle, III

copy of #7

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	
HARRY W. EBERLE, III	Examiner:
Serial No.: 09/186,741	BRUCE A. LEV
Filing Date: November 5, 1998	Group Art Unit: 3634
For: ANCHORING BISCUIT DEVICE	Attorney Docket No.:
	HWE-105C

Honorable Commissioner of Patents and Trademarks
Washington, DC 20231

APPEAL BRIEF

This Brief is being filed in response to the Final Rejection of January 19, 2000 in the above-referenced case.

I. REAL PARTY IN INTEREST

The inventor of the instant patent application is Harry W. Eberle, III.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences which will directly affect or be directly affected by or have a bearing on a decision in the present Appeal Brief.

III. STATUS OF CLAIMS

Claims 1 through 17 have been cancelled. Claims 18 through 29 are pending. Claims 18 through 29 are the subject of this Appeal.

IV. STATUS OF AMENDMENTS

The amendment submitted on November 18, 1999 was entered with the result that claims 18 through 29 are now pending. Appendix A contains a copy of claims 18 through 29.

V. SUMMARY OF THE INVENTION

The present invention is an anchoring biscuit device for joining three boards. Appendix B contains three pages of drawings, the first page showing Figures 1 through 4, the second page showing Figures 5 through 8, and the third page illustrating Figures 9 through 11. Referring specifically to Figures 1, 2 and 3 in Appendix B, there is shown a first substantially flat horizontal top element (3) having a generally biscuit-shaped top view configuration, at least two substantially vertical support members (15 and 17) attached to the underside of the top element and extending downwardly therefrom for a predetermined length to place the top element at a predetermined height for joinder of two adjacent boards which have been pre-cut with biscuit receiving slots. In the present invention device, there is an attachment means established by at least one hole (13) formed at the top element with a space

extending downwardly from the hole (13) between the vertical support members for attachment of the anchoring biscuit device to a support board for anchoring and support of the two adjacent boards by screwing. This is shown in Figure 4, wherein present invention device (1) is anchored to support board (25) with screw (31). Top element right half biscuit portion (5) anchors beam (21) in cut-out (27). Beam (23) with cut-out (29), may be slid into place onto top element left side biscuit portion (7) and another present invention device applied to the opposite side of beam (23) in a similar fashion to repeat the anchoring technique. Figures 7 and 8 on the second page of Appendix B shows present invention biscuit device (91). This is the same as the Figure 1 device, but has an elongated elliptical orifice (103) with beveled edges (105). This enables a user to more easily connect both a top board and a beam simultaneously with a single screw by slant screwing, as shown on the third page in Figure 9 with present invention device (91) and screw (131) simultaneously connecting board (21) and support beam (25).

VI. ISSUES

The basic issues are as follows:

(a) The appropriateness of the Examiner's rejection of claims 27 through 29 under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

(b) The appropriateness of the Examiner's rejection of claims 18, 19 and 24 through 27 under 35 U.S.C. §103(a) as being unpatentable over

Ellinwood in view of Bischof '428.

(c) The appropriateness of the Examiner's rejection of claims 20 through 23, 28 and 29 under 35 U.S.C. §103(a) as being unpatentable over Ellinwood in view of Bischof and further in view of German Patent 372,483.

(d) The appropriateness of the Examiner's failure to treat the 132 Affidavit and attachments and inclusions as sufficient to overcome the aforesaid obviousness rejections under 35 U.S.C. §103(a).

VII. GROUPING OF CLAIMS

In this Appeal, all of the claims are grouped together.

VIII. ARGUMENTS

ISSUE (A) THE APPROPRIATENESS OF THE EXAMINER'S REJECTION OF CLAIMS 27 THROUGH 29 UNDER 35 U.S.C. §112 AS BEING INDEFINITE FOR FAILING TO PARTICULARLY POINT OUT AND DISTINCTLY CLAIM THE SUBJECT MATTER WHICH APPLICANT REGARDS AS THE INVENTION.

The Examiner has made the rejection of claims 27 through 29 under 35 U.S.C. §112, second paragraph, because the phrase "said at least two vertical support members" and the phrase "at least one....vertical support member" lack antecedent basis. The Examiner is correct and, it these claims otherwise contain allowable subject

matter, Appellant authorizes correction by Examiner's Amendment. Thus, in claim 27, line 10 "said at least two vertical support members" should read --said at least one vertical support member--. Likewise, in claim 27, at lines 11 and 12, the phrase "and one of each being located on opposite sides of an attachment orifice" should be deleted. The first occurring period should be a comma.

ISSUE (B) THE APPROPRIATENESS OF THE EXAMINER'S REJECTION OF CLAIMS 18, 19 AND 24 THROUGH 27 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER ELLINWOOD IN VIEW OF BISCHOF '428.

Claims 18, 19 and 24 through 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ellinwood in view of Bischof 5,529,428.

Applicant respectfully disagrees with the Examiner's rejection for a number of reasons. First, Ellinwood, the primary reference, is directed to a different structure from the present invention, with a different purpose, and with different results. Ellinwood shows a continuous device with elongated parallel walls and not biscuit-shaped elements, as presently claimed. Second, Ellinwood has no orifices, i.e. holes that pass all the way through the device. Instead, Ellinwood provides a groove for the nail head, but clearly teaches that the fastener must be "driven therethrough" and instructs that the base of the connecting member is properly positioned on the stud and the nails are then driven. (Column two, lines 62 et seq.) In fact, Ellinwood uses an

offset opening to accommodate the nails and all of these openings shown in all of the Ellinwood drawings are clearly not orifices that pass through the device as in the present invention. Even after nailing, the resulting product has no biscuit shape and is otherwise different. Third, Ellinwood does not show or suggest two or more vertical support members as claimed ("at least two").

Thus, Ellinwood teaches the use of T-like continuous elongated splines for joinder of abutted panels to rafters or studs. These splines usually run the full length of the studs and even when they do not, Ellinwood states that an important feature is the dimensional relation of this connecting member to the grooves in which it is fitted (column 1, line 46 et seq.), that the connecting member (the spline) has a shape corresponding to the grooves and space of the panels (column 1, line 49 et seq.). These grooves are continuous and flat (see e.g. the Figures of Ellinwood) and Ellinwood requires that the connecting member be snugly received by the respective groove. None of this teaches or suggests the use of biscuits or biscuit-shaped connection members, but rather, has specific needs and objectives which teach away from biscuit (arcuate) shapes. It is difficult to even understand the Examiner's interpretation of this reference's teachings in a manner that would render the present invention obvious, even given the secondary reference. It describes an invention which is structurally different, mates with a different female aspect and is used for a different purpose. Biscuit shapes could not possibly even function in the stated purpose or environment of Ellinwood.

Thus, Ellinwood does not render the present invention obvious, even with the secondary reference, because of the foregoing shortcomings.

The secondary reference to Bischof is directed to a metallic structural element for connecting work pieces consisting of wood, woodworking material or plastic, which includes a lamellar part and a bolt-like part. The lamellar part provides a non-positive connection with a first workpiece provided with a groove and a transverse hole. The bolt-like part, through screwing or pinning, attaches the non-positive connection with the second workpiece via a longitudinal hole. In other words, the Bischof connector is a half biscuit with a planar extended screw and a traverse locking hole. Bischof does not even provide for a horizontal top element and one or two vertical support members to create the flat top (horizontal) and the downwardly extending at right angles (vertical) support members. In fact, the Bischof device is all in a single flat plane! Thus, it is completely different from the present invention and teaches totally away from the present invention. The Examiner relies upon Bischof to reject the claims under 35 U.S.C. §103 in conjunction with Ellinwood on the basis that it would be obvious to change Ellinwood's device to be arcuated. However, this is contrary to the teachings of the main reference and is inferior and structurally different from the present invention device as claimed.

Finally, to correct a misunderstanding of Bischof, referring to Figure 9 of Bischof, it is true that one end plate of the device shown is arc-shaped on both sides and thus biscuit-shaped. The Examiner has misunderstood the drawings. This is

merely a drilling template in Figure 9 and cannot be used as an anchoring device as in the fashion of the present invention and is still significantly structurally and functionally different. For example, stop part 25 is a solid section running the entire length of the end plate and a screw could not pass through cut-out 28 to fasten the device to anything. Stop 25 (the "vertical support member") must be solid under hole 28 to present the center mark 29. Thus, Figure 9 of Bischof shows a device which is structurally different from the present invention, serves a different purpose and achieves a different result. Even a 35 U.S.C. §103 rejection would be inappropriate because it would not be obvious to modify a cutting and drilling template into a joinder device, especially since Bischof already teaches a joinder device which is established in a single flat plane and is totally different from the present invention. Nor is it appropriate to even combine Ellinwood and Bischof because they are directed to different purposes using different structures. It appears that the Examiner is using a hindsight approach to create this rejection.

It is important to note that both the primary reference to Ellinwood and the secondary reference to Bischof show totally different objectives and have no suggestion or even logical reason to be combined.

Thus, this rejection should be reversed.

ISSUE (C): THE APPROPRIATENESS OF THE EXAMINER'S REJECTION OF CLAIMS 20 THROUGH 23, 28 AND 29 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE

OVER ELLINWOOD IN VIEW OF BISCHOF AND FURTHER IN VIEW OF GERMAN PATENT 372,483.

Claims 20 through 23, 28 and 29 stand rejected under 35 U.S.C. § 103(a) as obvious over Ellinwood in view of Bischof and further in view of German Patent 372,483. All of the arguments regarding Ellinwood and Bischof stated under Issue B above are repeated herein.

The Examiner is correct in his assertion that the German Patent '483 shows an orifice with an elongated, bevelled top for a wood screw. However, there is no suggestion or teaching in Ellinwood or Bischof or the German Patent to combine the teachings of these three patents or to even combine any two of them. In fact, Ellinwood does not use screws. The Ellinwood invention relates to panels being fitted onto long strips of channel bases which are nailed to studs with no movement needed - in fact the Ellinwood invention requires the base to be rigid on the rafter to provide a floating relationship between the panels and the rafter itself during insulation. To provide orifices in Ellinwood would be contrary to the invention and defeat its purpose. As mentioned above, Ellinwood provides no orifices, but only partial cut outs and Ellinwood has fasteners such as nails driven through the base. Thus, it is inappropriate for the Examiner to combine the teachings of Ellinwood and the German Patent.

Second, even if the teachings of Ellinwood, Bischof and the German Patent are combined for the sake of argument, the results do not overcome the foregoing

shortcomings of Ellinwood and Bischof as stated above because the German Patent shows none of the claimed structures. The resulting combination of Ellinwood, Bischof and the German Patent would still be a straight rod with a beveled hole with potentially undesirable loose stud attachments and/or with useless, counterproductive half biscuits.

For all of the above reasons, it is urged that the rejection of claims 20 through 23, 28 and 29 based on Ellinwood, Bischof and the German Patent would be inappropriate.

ISSUE (D): THE APPROPRIATENESS OF THE EXAMINER'S FAILURE TO TREAT THE 132 AFFIDAVIT AND ATTACHMENTS AND INCLUSIONS AS SUFFICIENT TO OVERCOME THE AFORESAID OBVIOUSNESS REJECTIONS UNDER 35 U.S.C. §103(a).

In addition to the above arguments and amendments, submitted above, the Examiner was presented with a Declaration of the inventor herein under Rule 1.132 (Appendix C hereto), which supports a finding of non-obviousness not only with respect to the cited references, but with respect to the references which have been made of record and not relied upon by the Examiner. The inventor has had years of experience and has encountered very significant commercial success and has supported this with his own swearing and substantial supporting documents. It is urged that this Declaration be deemed sufficient to overcome any presumptions of obviousness heretofore established by the Examiner. The Examiner has failed to give adequate

consideration to the Declaration, its attachments and accompanying video and has failed to recognize that these overcome any obviousness rejections herein.

CONCLUSION

Applicants believe it should be clear to the Board of Appeals that currently pending claims 18 through 29 are substantively allowable over the prior art relied upon by the Examiner and that the 35 U.S.C. §112 rejection can be overcome by simple amendment, in view of the above arguments and Appendixes hereto. The rejections under 35 U.S.C. §103(a) should be reversed. The appealed claims are attached hereto as Exhibit A.

Thank you.

Respectfully submitted,

Date: April 18, 2000

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Enclosures
Via Express Mail No.: EK649734992US
cc: Harry W. Eberle, III

APPENDIX A

18. An anchoring biscuit device for joining three boards, which comprises:

(a) a first substantially flat horizontal top element having a generally biscuit-shaped top view configuration with opposite side walls in the shape of arcs from a top view, said arcs having predetermined radii and arc lengths, said top element having a center area between said opposite side walls in the shape of arcs;

(b) at least two substantially vertical support members attached to an underside of said top element at said center area of said top element and extending downwardly therefrom for a predetermined length to maintain said top element in a predetermined position during use for joining two adjacent boards which have been pre-cut with biscuit receiving slots, two of said at least two vertical support members being substantially flat, being in the same plane and one of each being located on opposite sides of an attachment orifice; and,

(c) at least one attachment orifice located at least on said top element for attachment of said anchoring biscuit device to a support board for anchoring and

support of said two adjacent boards.

19. The anchoring biscuit device of claim 18 wherein said attachment orifice is at least one screwhole located on said top element for screwing of said anchoring biscuit device to a support board.

20. The anchoring biscuit device of claim 18 wherein said attachment orifice has a bevelled top.

21. The anchoring biscuit device of claim 18 wherein said attachment orifice is non-circular and elongated.

22. The anchoring biscuit device of claim 19 wherein said screwhole has a bevelled top.

23. The anchoring biscuit device of claim 19 wherein said screwhole is non-circular

and elongated.

24. The anchoring biscuit device of claim 18 wherein said top element and said vertical support member are unitarily formed.

25. The anchoring biscuit device of claim 18 wherein there are two vertical support members and one is located on each side of said attachment orifice.

26. The anchoring biscuit device of claim 25 wherein said top element and said two vertical support members are all unitarily formed.

27. An anchoring biscuit device for joining three boards, which comprises:

(a) a first substantially flat horizontal top element having a generally biscuit-shaped top view configuration with opposite side walls in the shape of arcs from a top view, said arcs having predetermined radii and arc lengths, said top element having a

center area between said opposite side walls in the shape of arcs;

(b) at least one substantially vertical support member attached to an underside of said top element at said center area of said top element and extending downwardly therefrom for a predetermined length to maintain said top element in a predetermined position during use for joining two adjacent boards which have been pre-cut with biscuit receiving slots two of said at least two vertical support members being substantially flat, being in the same plane and one of each being located on opposite sides of an attachment orifice: and,

(c) at least one attachment orifice located at least on said top element for attachment of said anchoring biscuit device to a support board for anchoring and support of said two adjacent boards.

further wherein there is one vertical support member which is located off-center and to one side of said attachment orifice.

28. The anchoring biscuit device of claim 27 wherein said attachment orifice has a bevelled top.

29. The anchoring biscuit device of claim 27 wherein said attachment orifice is non-circular and elongated.--

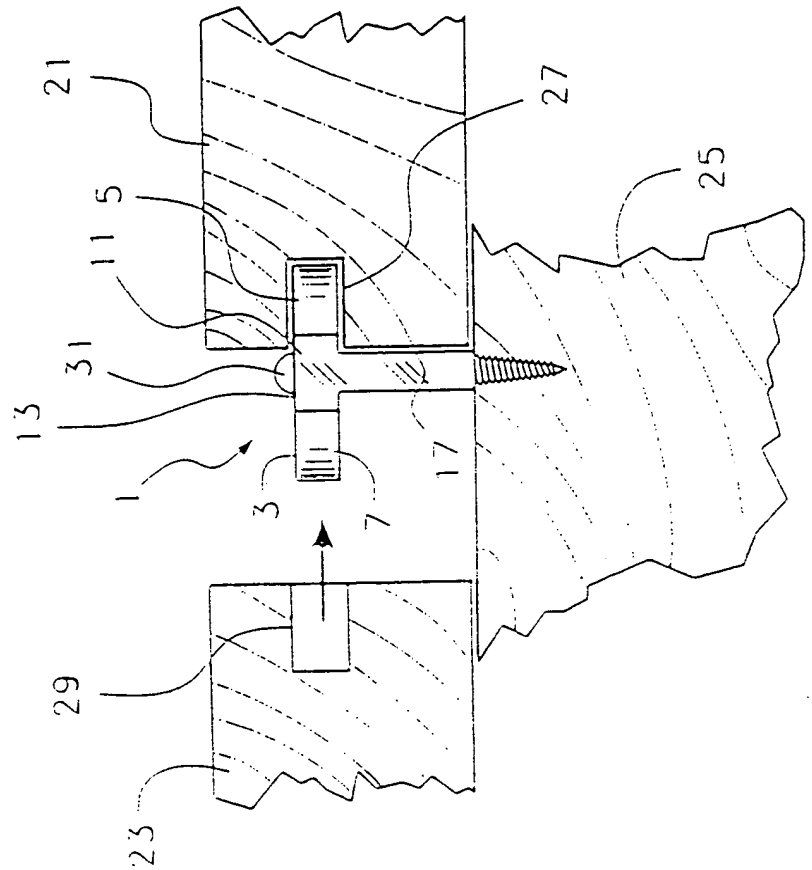


Fig. 4

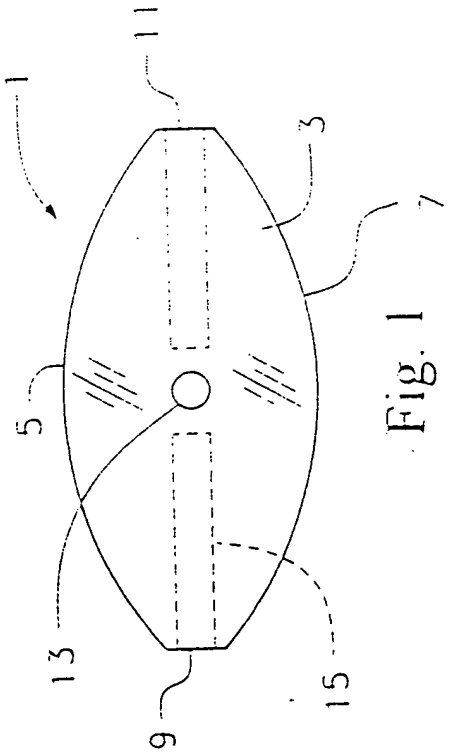


Fig. 1

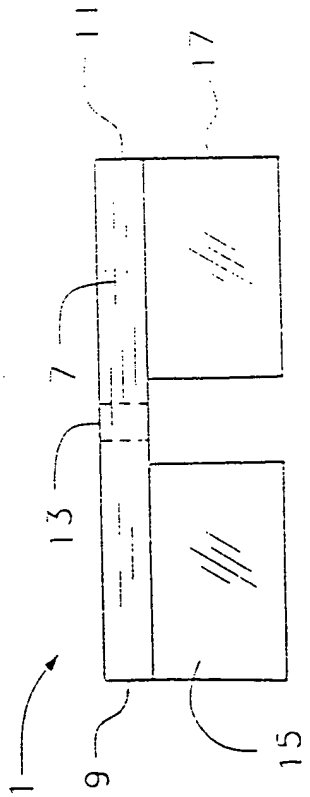


Fig. 2

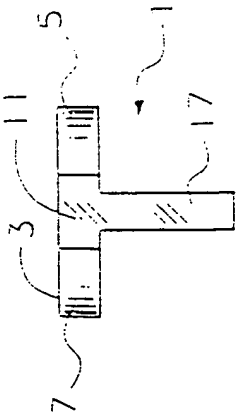


Fig. 3

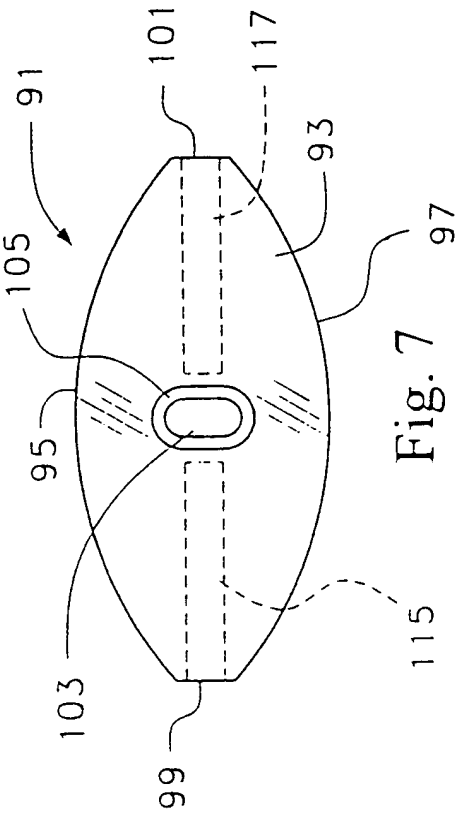


Fig. 7

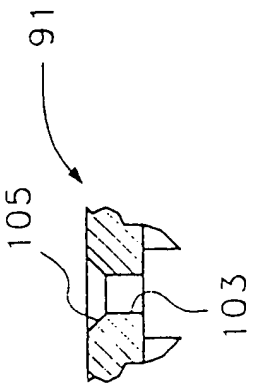


Fig. 8

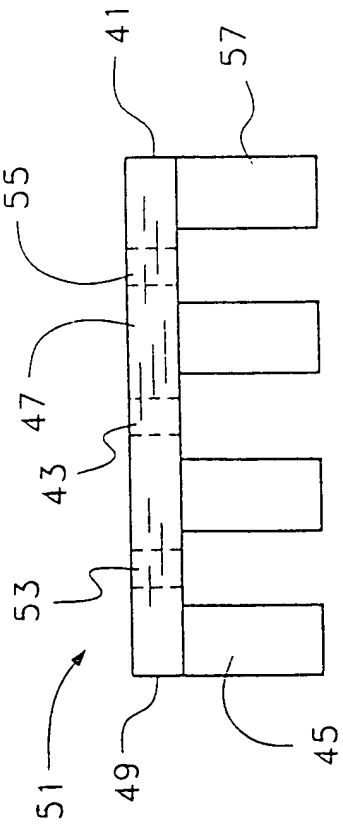


Fig. 5

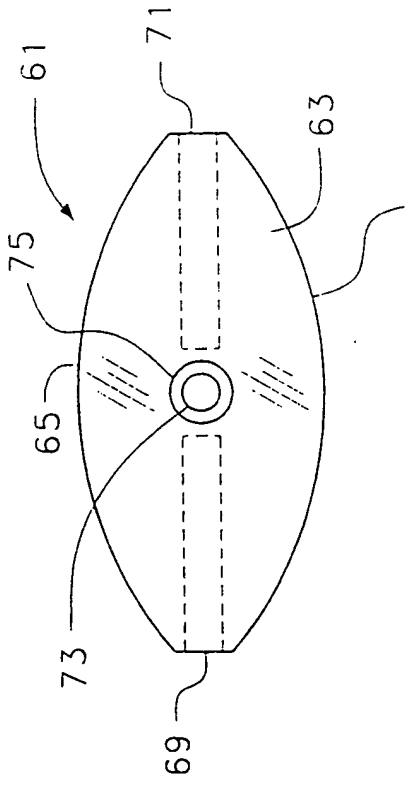


Fig. 6

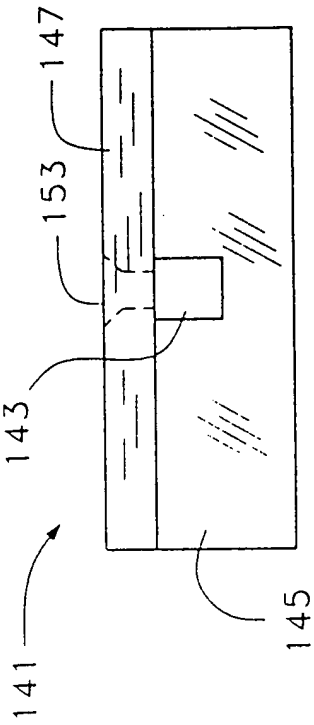


Fig. 10

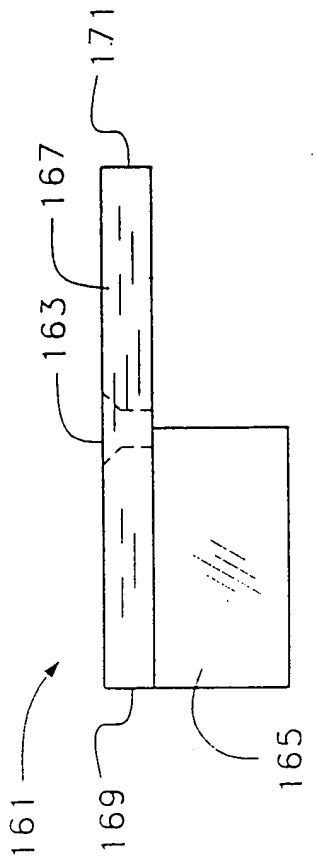


Fig. 11

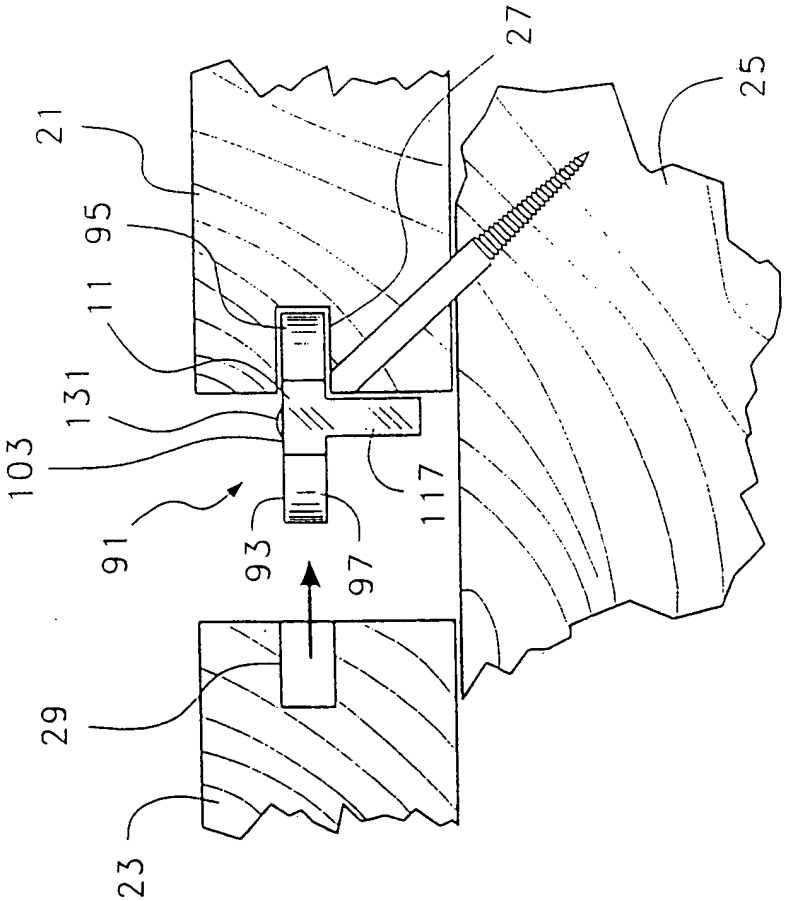


Fig. 9

APPENDIX C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	: Examiner:
HARRY W. EBERLE, III	: BRUCE A. LEV
Serial No.: 09/186,741	: Group Art Unit: 3634
Filing Date: November 5, 1998	: Attorney Docket Number:
For: ANCHORING BISCUIT DEVICE	: HWE-105C

Honorable Commissioner of Patents and Trademarks
Washington, DC 20231

DECLARATION UNDER RULE 1.132 OF HARRY W. EBERLE, III

I, Harry W. Eberle, III, am the inventor in the above application, and wish to state as follows:

1. I have been involved in the construction industry for more than 5 years as owner of Eberle Builders, Inc. and related companies and my family has been in the hardware business for decades. I have travelled around the country promoting my new product "EB•TY" which is the product covered by the above identified patent application.

2. I have reviewed and am familiar with the Office Action dated August 19, 1999 in the above case as well as the prior art references cited therein.

3. All of the claims in the above case have been rejected on prior art and this prior art describes products which do not utilize the same physical structure as my

invention, are not used for the same purpose and do not achieve the same results. Nonetheless, it is hoped that the newly submitted claims clarify the significant differences between Ellinwood and the German cited Patent on the one hand, and the present invention on the other hand. Neither of these references relate in anyway to biscuit shaped products. In support of a clearer understanding of biscuits in the carpentry field, I enclose an article entitled "Slot Machines - Biscuit Joiners Make Ordinary Guys Look Good" from the March/April 1998 issue of This Old House, pages 31 through 36 and especially page 33. These biscuits are consistent with the original definition set forth in my application as originally filed and as now specified in the new claims.

4. In addition, I am enclosing a copy of a video tape entitled "EB•TY® 1-800-GET-EBTY" and labeled "Glynn and Malgran, P.C., One Route 12 West, Plaza One, Suite 201, Flemington, New Jersey 08822; U.S. Serial No. 09/186,741" and a copy of another video tape entitled "Men in Toolbelts-Deck" and labeled "Glynn and Malgran, P.C., One Route 12 West, Plaza One, Suite 201, Flemington, New Jersey 08822; U.S. Serial No. 09/186,741". These will illustrate more vividly for the Examiner exactly how the invention works.

5. While I could state that my invention is better than all the others, that would be subjective. As objective evidence to overcome any presumption of obviousness I wish to add the following to this Declaration:

a.) My invention has been so widely accepted in the field of carpentry and especially in deck building that more than 20 publications have written articles. Enclosed are copies of the following articles which are submitted as examples:

1. "Tools and Materials", Fine Homebuilding, March 1998, No. 114, Pages 132 through 134;

2. "Almost Invisible", Building Products, May/June 1998, Page 141;

3. "Innovative Tools and Materials", Journal of Light Construction, July 1998, Page 39;

4. "Construction Innovation Awards", CBTC Expo Program Guide, October 23 and 24, 1998, two pages; and,

5. "Decks for Decades", Garden, Deck and Landscape, Fall 1998, Page 34 through 39.

b.) Not only has this invention been widely accepted and proclaimed and published, but it has received the coveted Construction Innovation Award from The Journal of Light Construction and as evidence of that enclosed is the 1998 Award Certificate.

c.) In addition to the foregoing, I can attest to the fact that not only have I never seen anything close to my invention in the marketplace, but I have experienced the commercial success of selling more than 2,800,000 "EB•TYs"

in the first two years since its introduction. I have been able to do this without any significant marketing or advertising funds and without any pre-existing sales force, but predominantly as a result of the cost effectiveness, the technical ease of application, the aesthetics resulting from hidden joints and the long needed alternative workable products to nailing or screwing deck tops with exposed screws and or popping nails.

6. In summary, my product which is clearly covered by the current claims in my pending patent application has had surprising commercial success and satisfies a long felt need in the industry. This is evidenced not only by my actual sales results which only my son and I have been handling, but is further evidenced by the enclosures submitted herewith.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true: and further that these statements were made with the knowledge that willfully false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code, and that such willfully false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 11/14/99

Harry W. Eberle, III

KPG:clp
Enclosures
Via Express Mail RRR No. EE856558083US

MARCH/APRIL

this old house

ILDING A FENCE ◦ GET THE RIGHT ROOF ◦ BISCUIT JOINERS ◦ PAINT SCRAPER
PLACING A WINDOW ◦ A REAL COOK'S KITCHEN ◦ PRESSURE-TREATED LUMBE

Spring Maintenance

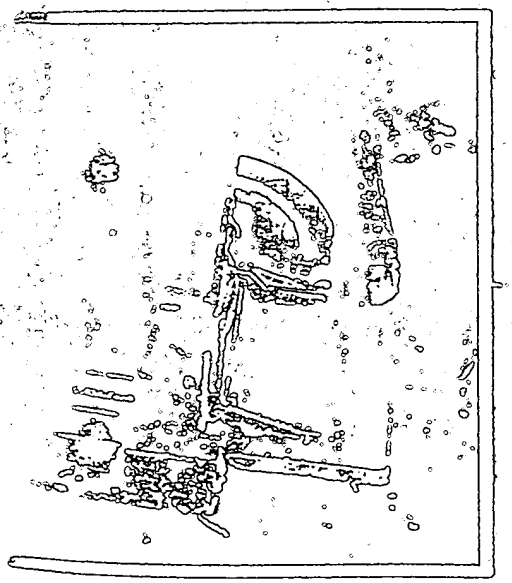
GUIDE

SLOT MACHINES

Biscuit joiners make ordinary guys look good

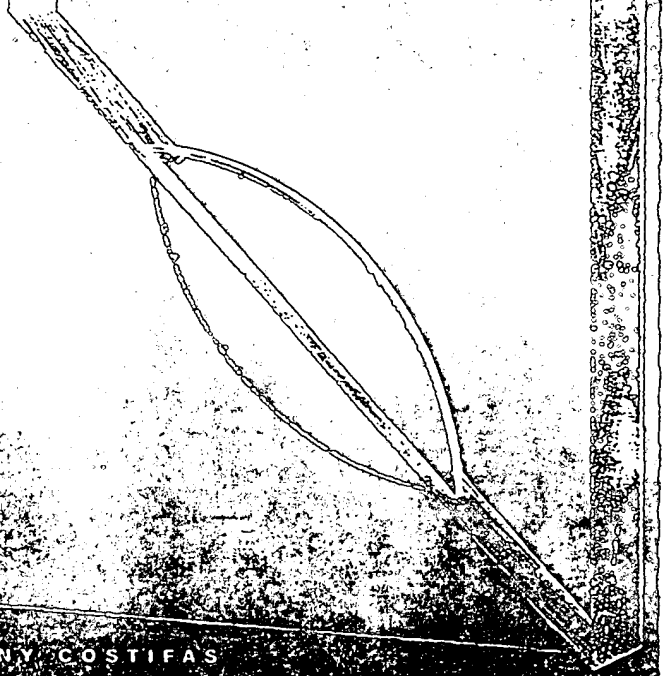
BY MARK FEIRER

In the hands of an experienced craftsman like *This Old House* contractor Tom Silva, even a bizarre, ugly and awkward tool can seem ordinary. And this tool he's holding, this so-called biscuit joiner, this spinner of tiny blades that can be shoved into a piece of wood to make a seemingly useless half-moon cut, is anything but ordinary. *Zeerip, zeerip, zeerip* goes the tool as Tom pushes it repeatedly into the edge of a doorjamb at the Milton dream house, making those silly little slots. Tom then makes matching cuts in a piece of trim he wants to attach to the jamb. He slathers the cuts in the jamb and the trim with yellow carpenter's glue. Then he sticks his hand into a pocket, pulls out a sliver of beechwood about 3 inches long that looks like a tiny football crushed by a steamroller. This is the biscuit or plate. He slips it into the glue-filled cuts and pushes everything together. Voilà—a crazy-looking, but effective, little spline joins pieces of wood together in about the same



A biscuit joiner's carbide-tipped blade plunges into a half-oval slot into synthetics such as solid-surface countertops or Lucite, above, but the tool is most often used to hold wood together.

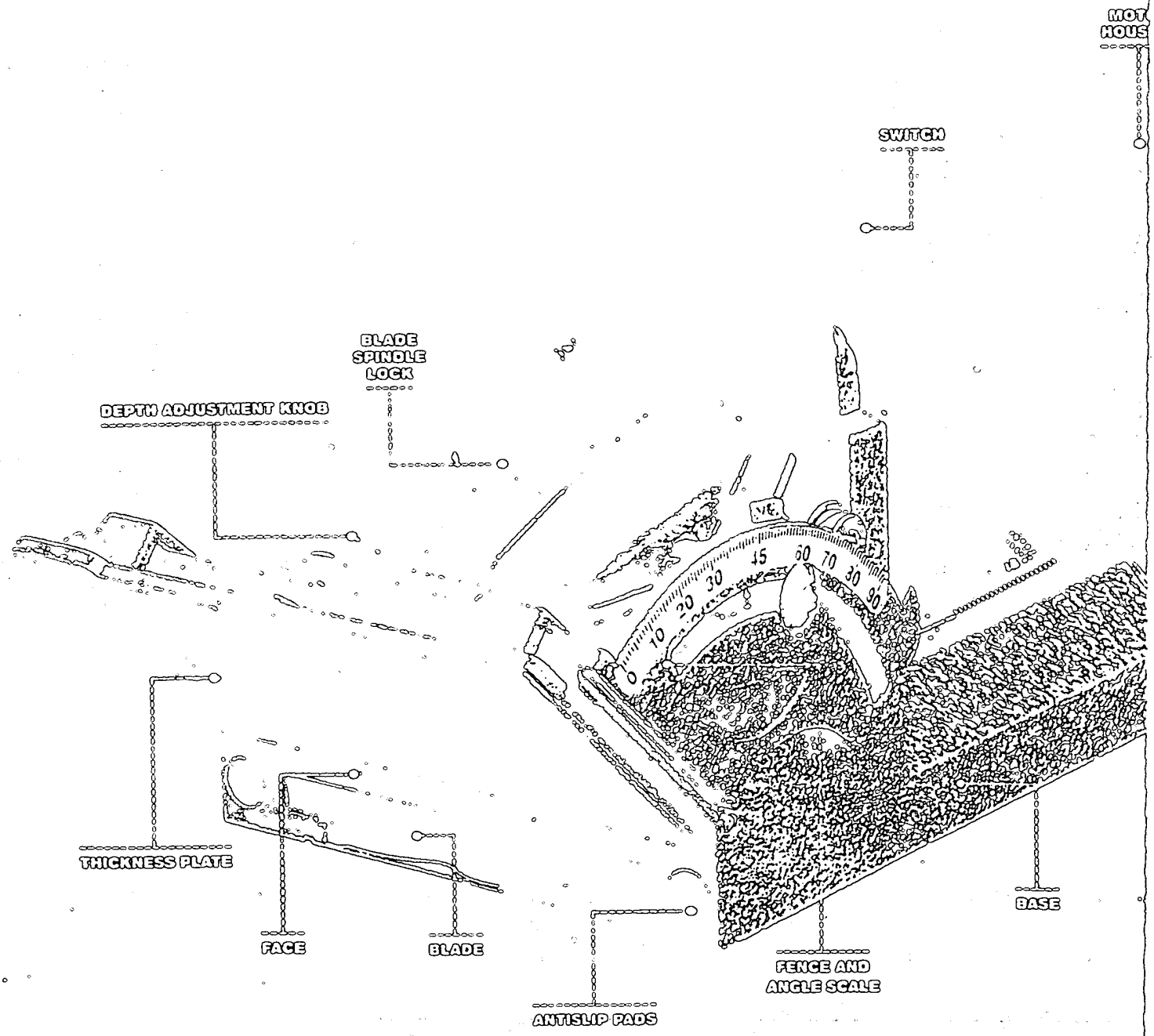
To clarify how biscuit joiners and their wafer-like connectors work, we made a 45-degree miter joint out of clear acrylic, cut into it with a biscuit joiner and inserted a red plastic biscuit. The system was the brainchild of Carl Steiner, a Swiss woodworker who invented it in 1944.

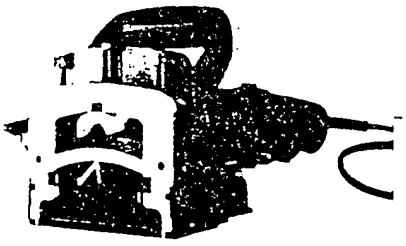


PHOTOGRAPHS BY ANTHONY COSTIFAS

Gold Standard

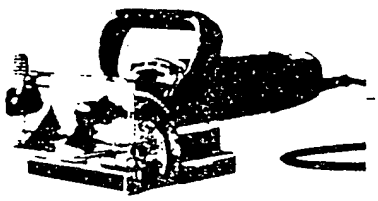
From the company that first introduced biscuit joining, this Swiss beauty is as durable as it is expensive. Features include a slip clutch to prevent kickback or motor damage if the blade catches a knot, rubber antislip buttons and a stout, finely machined fence. A clip-on thickness plate enables the tool to cut slots in stock less than ⅜ in. thick. 10,000 rpm, 6.4 amps.





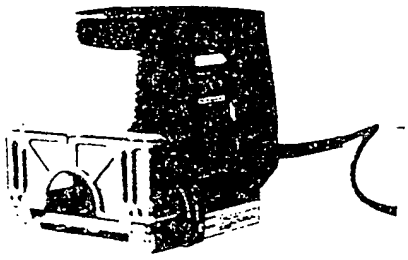
Switch Blade

Fitted with a blade that has a diameter of either 2 in. or 4 in., this joiner can biscuit big and small. It has a rear-mounted switch, seven depth settings and a gritty, full-length antislip pad. 10,000 rpm, 7.5 amps.



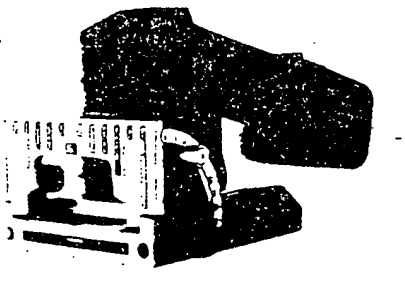
Low Down

A snug profile puts the hand close in line with the easy-to-change 4-in. blade. The joiner's metal fence has rack-and-pinion gearing, six depth settings and a full-length rubber antislip pad. 10,000 rpm, 6.5 amps.



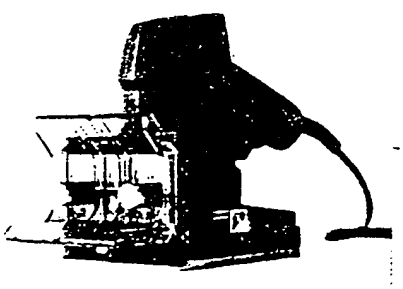
Upright

The only D-handled biscuit joiner has a convenient trigger switch, a 4-in. blade, three blade-depth settings for different biscuits and retracting antislip pins that barely penetrate the wood. 8,000 rpm, 5 amps.



No Cord

A rechargeable 12-v. ni-cad battery frees the joiner from proximity to a wall socket, a plus when trimming doors and windows. It has a 4-in. blade, six depth settings and two rubber antislip buttons. 24,000 rpm.



Compact

A blade with a 2-in. diameter cuts slots only for the tiny biscuits in picture frames. Features include a reversible 45- and 90-degree fence, a rubber antislip pad and three blade-depth settings. 20,000 rpm, 3.5 amps.

time it takes to make a weak joint with glue alone.

The first biscuiting tools in the United States were imported from Europe by the Lamello company 15 years ago. Not much more than an angle grinder with a 4-inch—or smaller—saw blade and chunky L-shaped fence on the nose, the biscuit joiner is finally beginning to break out of the woodworkers' insular domain and into the world of Harry Home Owner.

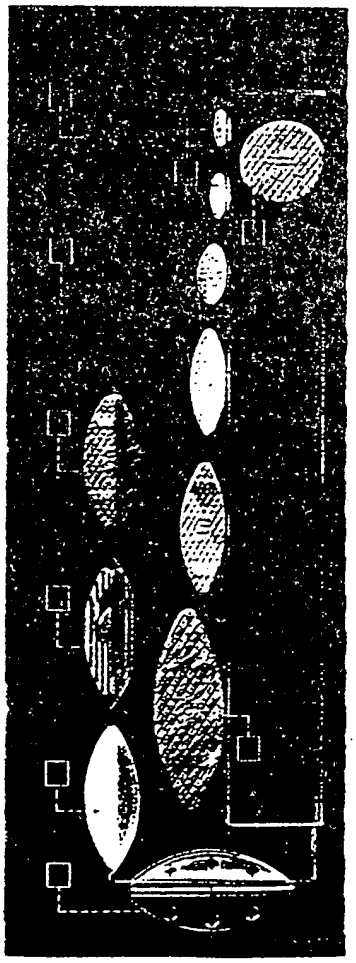
It may be, in fact, the perfect power tool: durable, forgiving, relatively safe and so easy to use that a novice can improve his woodworking abilities immediately. When Tom first picked one up 10 years ago, it was love at first plunge. "I saw instantly that it made wood joints strong and easier to assemble."

Before biscuits, a strong joint took lots of time both in the learning and the making. Dovetail and mortise-and-tenon joints need precision sawing and chiseling to create mating surfaces that meet exactly. Spline joints require a router or table saw, a sure hand and custom-sawn splines. Dowel joints use standard drill bits and wood pegs but demand absolute precision in layout and drilling. If one dowel is just a smidgen off, it will ruin the joint.

Contractors and home owners have had little time for such nonsense. When installing trimwork, they've used glue, nails and a prayer, and hardly seem surprised when

Pass the Biscuits

The best wood biscuits are beech, a wood that takes glue well and swells predictably. Die-cut from solid wood then imprinted with a moisture-absorbing pattern, they range in size from 3½-in.-long S-6s (1) for thick stock, to diminutive ¾-in. R-2s (2) for picture frames. Round biscuits (3) are for kerfs cut with a router and a slot-cutting bit. Tom's favorite wood biscuit, the No. 20 (4), suits a variety of joining jobs. Not all biscuits are wooden. UV-resistant polypropylene biscuits (5) space wooden deck boards uniformly and anchor them invisibly with screws. Plastic clamping biscuits (6) grab wood without glue; they're used with wood biscuits in hard-to-clamp joints. Interlocking aluminum plates (7) allow joint disassembly. Plastic biscuits (8) join slabs of solid-surface countertops. The lozenge-shaped cabinet hinge (9) isn't a biscuit at all, but it needs a biscuit joiner to carve its mortises.



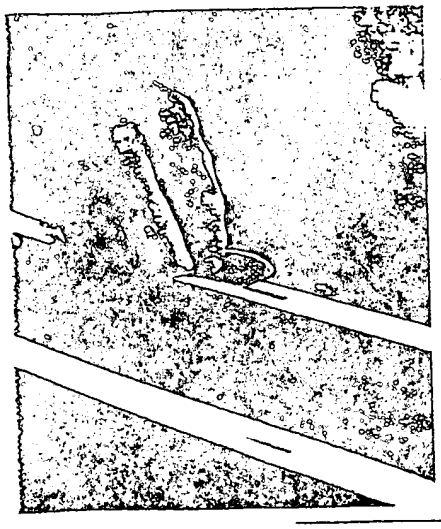
THIS IS EASY

Marking

When Tom Silva biscuit-joins boards to make a shelf, marking layout lines couldn't be simpler. He simply marries the boards edge to edge, then strikes a line across the joint wherever he wants to plant a biscuit, every 10 in. or so. The marks on the boards show him where to make each plunge.

Cutting

Tom sets the depth dial to the size of biscuit he's using, flips down the fence and adjusts the blade's height to about half the board's thickness. The whole process takes less than 10 seconds. To cut the slot, he lines up the fence's red index mark with his pencil line, turns the tool on and pushes it into the wood. A thumb on the fence steadies the tool.



Joining

After cutting layout marks along the length of each board, Tom flips the boards up, runs a bead of carpenter's glue down both edges and smears it into the kerfs. He slips a biscuit into each slot on one board, mates the boards' edges and clamps them up. Moisture in the glue swells the biscuits, making a tight mechanical bond.

the joints open up later. Biscuits can't match the strength of tenons splines or dowels, but in undemanding joints, they're stronger than glue alone. "I had to pull out a fresh-glued biscuit joint once," Tom recalls. "It wasn't fun."

Despite the confusing and unfamiliar knobs, markings and moving parts of a typical biscuit joiner, the tool is not difficult to operate. The user just holds the spring-loaded fence against a hard surface, turns the motor on and pushes. The carbide-tipped blade slides forward just enough to make its kerf, usually ½ inch deep. As the tool is pulled off the work, the fence covers the blade protecting both it and the operator from harm.

This is a forgiving system. "You don't have to measure a layout," says Tom. He simply pencils a line across the joint and uses it as a target for the tool's index marks. Joints invariably fit because mating pieces can slide lengthwise about ¼ inch without binding on the biscuit. And there's no fighting to keep glue-slick wood in place. A buried biscuit holds the mating surfaces in perfect alignment as the glue dries. "It's like having three hands," says Tom.

A biscuit joiner has few quirks. There's a slight tendency for the blade to pull to the left as it grabs the wood, but a thumb on the fence and the slip-resisting prongs, pads or buttons on the tool's face stop sideways movement. Tom also makes sure the face rests flat against the work. "It's more important to keep that correct than worry about small differences in blade position," he says.

Uh-Oh

When Tom biscuits [illegible] beveled edge (the bevel is hidden in this photograph), the cutting depth is critical. If he sets it too deep, the blade will exit through the face of the wood. To slot [illegible] miters, [illegible] must have either a fence with an angled [illegible] above, or an add-on miter fence.

Once a novice gets comfortable with the tool, its applications will seem endless. "There always a use for a biscuit," Tom says. He rattles off the ways he uses them now: reinforcing damaged tongues on wainscoting, assembling exterior corner boards, indexing the long miters on screen frames, attaching cabinet stiles to rails, joining boards edge-to-edge to make a tabletop, installing deck railings, blind-fastening cabinet panels, even assembling two-by-fours into a cheap bunk bed for his kids. Sometimes, he will deliberately slide the tool sideways, cutting a groove down a cabinet stile. Then he'll biscuit the adjacent stile as usual. As he screws the cabinets together, the little ovals are his insurance that their faces stay flush.

Tom says his biscuit joiner has become as essential as his constantly beeping cell phone. "I could work without it," he says, "but I wouldn't want to." And if this one breaks? "No problem," he says. "I've got six more in the truck." ⌂

FOR SOURCES, SEE DIRECTORY—PAGE

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Flemington, New Jersey 08822

U.S. Serial No : 09/186,741

EB-TY™

1-800-GET-EBTY

Length: 2 minutes

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HorseHaar Productions, Inc
Men in Toolbelts-Deck
Episode 24 TRT--23:24

TAUNTON'S

Fine Homebuilding

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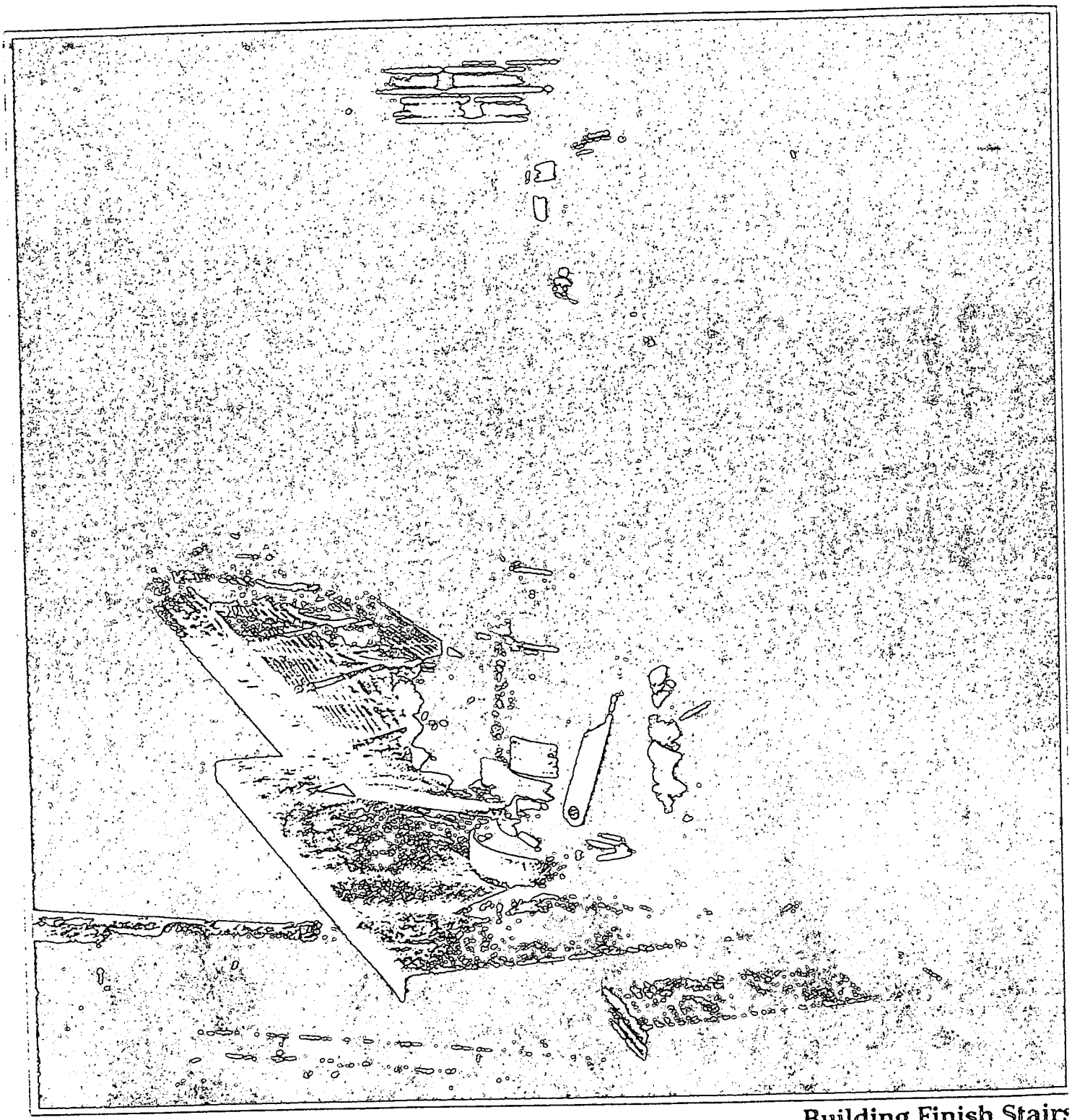
March 1998 No. 114



Building Finish Stairs

03>

U.S. $6.95

the toughness and durability of phenolic plastic when I learned that it has been used extensively for automotive timing gears and aircraft cable pulleys precisely because it was so tough and durable. AMPS recommends that the edges be sprayed regularly with silicone lubricant to reduce friction and forestall wear along the edge. The spray also helps the dovetail connections to fit together more easily.

I've used the AMPS equipment for about a year now; it is a well-engineered, precisely manufactured, useful tool. The only real drawback I can find is its cost. A simple 48-in. straightedge runs $140. That's a lot, but it's no more than a carefully machined aluminum edge costs. A starter kit is more affordable than individual pieces. My starter kit consists of 31-in., 48-in. and 96-in. straightedges, a joining plate and a 90° corner plate. The price for that kit is $425. If you want an accurate, professional-quality straightedge for projects around your shop, an AMPS edge fits the bill. And if you fabricate a lot of countertops, I think you'll appreciate the whole system.

—Herrick Kimball, a remodeler and kitchen contractor from Moravia, NY.

Plate-joiner decking hold-downs

When I worked as a carpenter, I reached a point where I hated building decks. I knew that whether I nailed or screwed down the decking, in a year the deck would creak when walked on and that probably at least one fastener would work its way out and become a trip hazard. I guess Harry Eberle, a builder from Califon, New Jersey, started to hate decks, too. But instead of just shaking his head and muttering at the start of every deck job, he developed t Eb-Ty (888-438-3289), a polypropylene disc that spaces and holds down decking. A rig spline that resembles the keel of a sailboat e tends the length of the biscuit bottom. A cou tersunk screw hole bisects both the biscuit ar its keel.

Slots aligned on joist centers are cut into bo sides of the deck boards with a plate joiner. . ter the boards are slotted, a deck board's wid of construction adhesive is squeezed onto eac of the joists. The first board is set in the glue ar fastened along its outer edge. The Eb-Tys sli into the board's slots and fasten to the joi with deck screws. More adhesive is placed, a the next board is slid onto the Eb-Tys. This co tinues until the last board is in place.

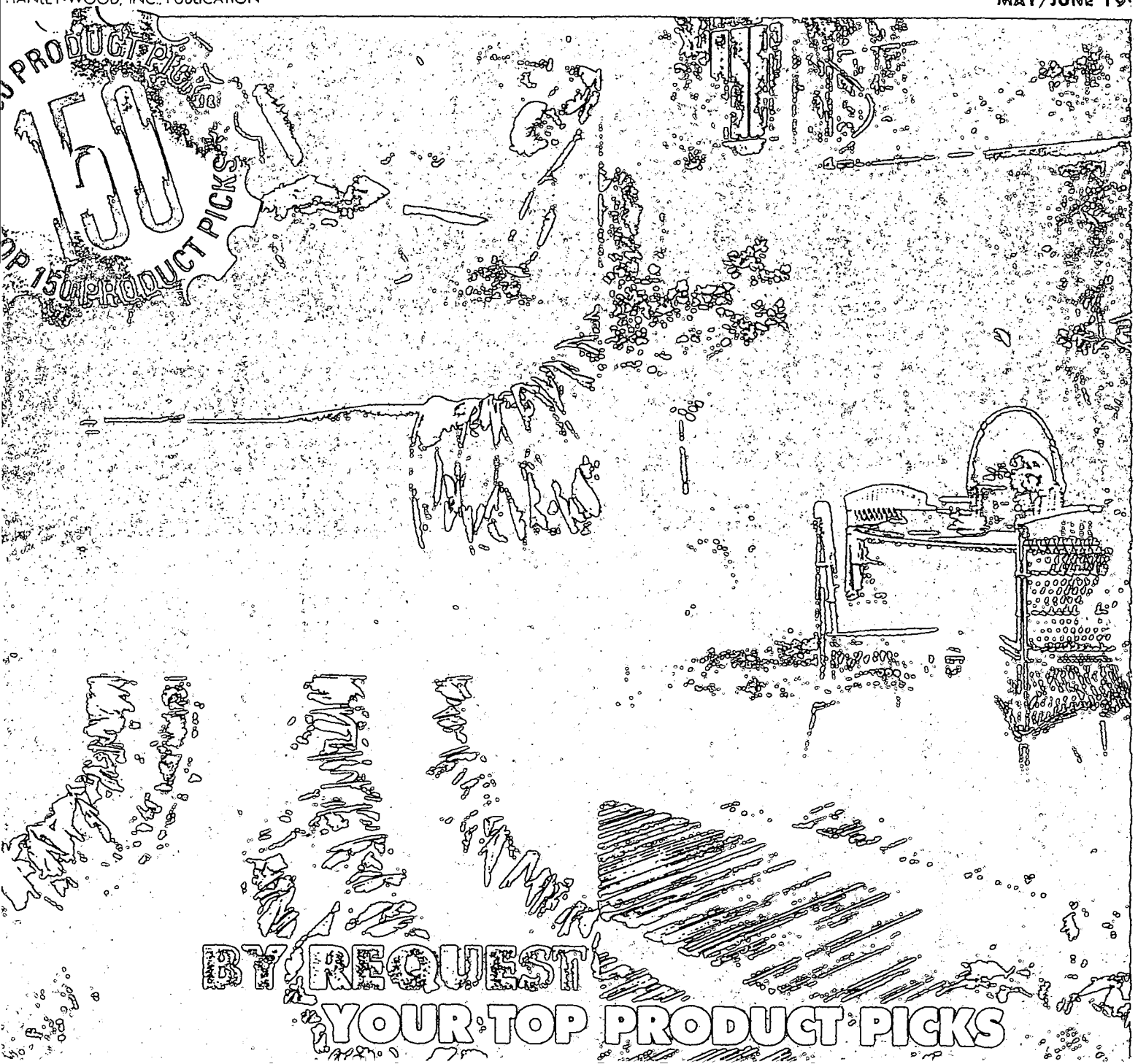
I haven't installed Eb-Tys myself, but I ha seen a finished deck that was fastene with them. It didn't creak or pop as I walke across it. And with no visible fasteners, the de had a real crafted look. Eb-Tys cost about $ each.—*A. E.*

"Tools & Materials" continues on p. 134.

BUILDING PRODUCTS

HANLEY-WOOD, INC., PUBLICATION

MAY/JUNE 19



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YOUR TOP PRODUCT PICKS

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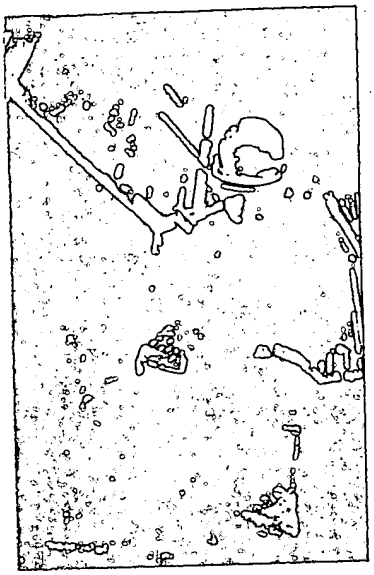
The K1250 Active Power Cutter offers



Partner Industrial Products. Circle 399.

19cc's of raw power, making it 20 percent more powerful than any other cut-off saw on the market, claims its maker, Partner Industrial Products of Itasca, Ill. Weighing less than 30 pounds, the saw is for work on concrete and steel piping, beams and poured and reinforced concrete. Other features include a decompression valve design and an easy-to-adjust blade guard. 800-323-3553. http://www.partnerusa.com. Circle 399.

▽ TIME-SAVING SCRAPING

Faster and easier removal of acoustic ceiling texture is now possible with the Ceiling Texture Scraper, claims its maker, Homax Products of Bellingham, Wash. The easy-to-use Ceiling Texture Scraper is attached to a broom handle or paint roller extension handle. A 4-gallon plastic bag attaches below the 10-inch-wide scraper head to capture the texture as it is scraped from the ceiling. It reduces labor and clean-up time, in addition to protecting floors and furniture. 800-729-9029. Circle 400.

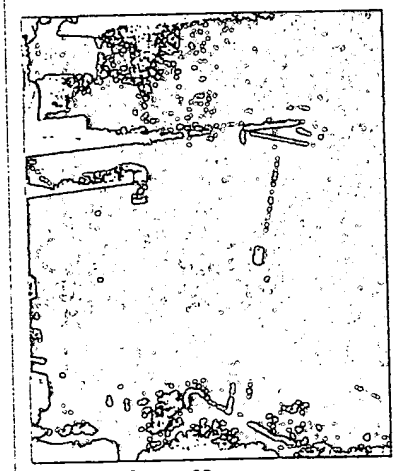
Homax Products. Circle 400.

ALMOST INVISIBLE

EB-TY Deck Fastening System is easy and fast to use and produces a deck without fasteners showing, claims inventor Harry Eberle III of Califon, N.J. The system uses only one screw at the joist and deck board intersections to install. Components of the labor-saving system are essentially invisible from the top or bottom of the deck. They also relieve stress caused by natural shrinkage of wood boards, Eberle says. 888-438-3289. Circle 401.

▽ HEAVY-DUTY SUPPORT

Wolfcraft of Itasca, Ill., introduces a roller support stand that supports heavy wood and metal stock. Weighing only 11½ pounds, the roller support stand can be used with a table saw, drill press, band saw or jointer. Its height adjusts to ranges from 27½ inches to 43½ inches, and its wide-braced stance and metal construction supports up to 130 pounds. 630-773-4777. Circle 402.



Wolfcraft. Circle 402.

CLEAR WATER

The Safe Pro UV Sterilizer contains a sediment and carbon filtration system that produces clear, odor-free water, effectively destroying 99.9 percent of bacteria and viruses, says manufacturer WGS International of San Diego, Calif. The easy-to-install system, which only requires once-a-year maintenance, comes in sizes from one gallon per minute for res-

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price. Unfortunately, however, it's easy to use the right gross profit margin to come up with the wrong selling price. It seems obvious, for instance, that adding 25% to your direct costs would give you a selling price that would cover the 25% gross profit in the above example. But the fact is, simply adding 25% results in a selling price that's too low. To cover a 25% gross profit, you have to increase estimated costs by 33%.

To understand why this is true, look at the four pairs of columns in Figure 2 (previous page). In each pair, the left-hand column represents estimated direct costs (materials, labor, and subs) of $40,000, so every left-hand column is the same height. The right-hand column in each pair, however, changes depending on what gross profit percentage is being used to figure the selling price.

To follow through on our example, look at the pair of columns labeled "25% Gross Profit." The blue box represents 25%, or 1/4, of the total revenue for the job. But this is 33%, or 1/3, of the estimated direct costs. In other words, when you're done estimating direct costs, you have to add 1/3 of those costs to arrive at a selling price that will cover a gross profit of 1/4.

With a smaller gross profit of 20% or 1/5, you need to add 1/4 of estimated costs. For a larger gross profit — 33% or 1/3, for example — you need to add 1/2 of estimated costs. Finally, to earn a gross profit of 50%, or 1/2, you have to sell the job at exactly twice your cost.

The Magic Formula

These examples use nice round numbers that I hope will help you visualize the relationship between estimated costs, gross profit, and selling price. When it comes to actually crunching the numbers, however, there's a foolproof formula for calculating a selling price that covers both overhead and profit: Simply take the decimal value of your gross profit, subtract it from 1, and divide it into your estimated costs. Returning to our example of $40,000 in estimated direct costs, the calculation would look like this:

Gross Profit = 25%, or .25
1 – .25 = .75
$40,000 ÷ .75 = $53,333 Selling Price

The formula works, not just for the gross profit percentages shown in Figure 2, but for any gross profit percentage. For example, if your gross profit is an odd number like 17.3%, the formula would work like this:

Gross Profit = 17.3%, or .173
1 – .173 = .827
$40,000 ÷ .827 = $48,368 Selling Price

Next time you have to quote a price, don't simply add 15% to your estimate like everybody else. Instead, figure out what your gross profit percentage should be, then use a divisor to figure the selling price. You may not win every bid, but for those jobs you do get, you'll cover your costs and earn a profit as well.

Sal Alfano, a former builder and remodeler, is editor of the Journal of Light Construction.

Innovative Products

by *JLC* Staff

STRUCTURE

Footer Form/Drain Combo

The *Snap Forms* combination footer form and foundation drain system uses modified plastic drain pipe placed in trenches in two parallel rows. Reusable rebar stakes and adjustable clamps hold the pipe in position, and the inner and outer perimeter drains are connected with crossover pipes. The trench is then backfilled with gravel to retain the concrete. Rebar hooks are available for hanging reinforcement, and the tops of the pipes act as a screed. The cost is about $1.10 per linear foot of wall.

Contact: Snap Footing Systems, P.O. Box 1810, Fairview Heights, IL 62208; 800/334-4460.

Reusable Debris Chutes

Here's a better way to handle debris from roof tearoffs and second-story gut remodels. The *Plastic Debris Chute* is a complete system of 32-inch-diameter straight chutes, intake hoppers, and protective panels made of injection-molded high-density polyethylene (HDPE). Individual sections are fitted with connecting chains and are tapered for easy storage and assembly. Initial cost may seem high — a basic system suitable for erecting a second-story chute, including mounting hardware for scaffolding and flat or pitched roofs, costs about $1,000. But compared with custom-built stud-and-plywood chutes, which waste material and require more labor to install, the reusable Plastic Debris Chute will pay for itself after only a few jobs.

Contact: Chutes International, 22 Irongate Dr., Waldorf, MD 20602; 800/882-4883; www.chutesintl.com.

Wet Basement Solution

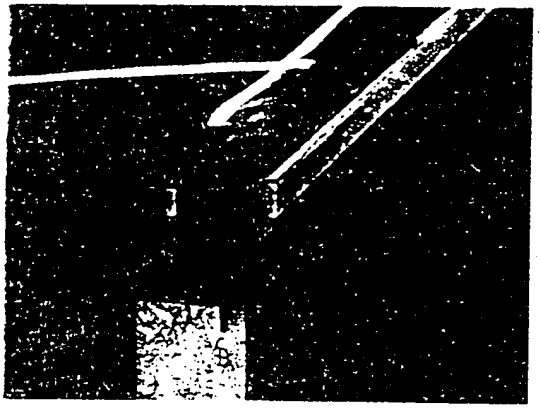
This recycled plastic membrane can be used to control water on both the outside and inside of a foundation. Wrapped around the exterior, the dimpled surface of *Hydro-Guard* promotes the flow of underground water to perimeter drains. As an interior retrofit solution for wet basements, the material captures water leaking through the wall and directs it to sub-slab drain tile. Hydro-Guard is available in rolls up to 8 feet wide and 65 feet long, priced between $80 and $135 per roll (in full skid quantities). The manufacturer also supplies fasteners, washers, plugs, and trim strips. A sister product, called *Warm-Crete*, comes in 1x3-meter foam-cushioned sheets that can be applied directly to a slab to isolate finish flooring from moisture or to control radon.

Contact: Hydro-Cell Inc., 1588 Stonechurch Rd. East, Unit #4, Hamilton, Ontario L8W 3P9 Canada; 800/289-8314.

& Materials

Flexible Framing Anchor

A new material called *Millibar* is designed as a tension tie to anchor framing. The 2½-inch-wide flexible strap is made of Kevlar, which has a tensile strength of 525,000 psi and is impervious to heat, cold, water, and salt air. Installed in an "X" or "V" pattern and securely fastened



along its entire length, the strap adds shear strength to walls and roofs. By creating a kerf in the sheathing where roof and wall meet, Millibar can also be used as a super-strong hold-down. The material comes in 230-foot coils and wholesales for $2.20 per linear foot.

Contact: New Necessities, 5710 Pebblebrook Trail, Gainesville, GA 30506; 770/844-9438; www.millibar.com

Steel Stud Insulator

A new insulating system is designed to eliminate thermal shorts through steel studs, joists, and headers. The *Snap-Cap*, which uses Amofoam (Tenneco) or Foamular (Owens-Corning) rigid EPS insulation, is designed to friction fit over the flanges of standard steel studs and joists; a self-adhering *Flat-Cap* is used for headers and doubled members. The components are available in thicknesses from ½ to 2 inches, and in 4- and 8-foot lengths, and provide an insulating value of R-5 per inch. Prices range from 10¢ to 16¢ per linear foot.

Contact: United States Building Technology, 701-B Waverly St., Framingham, MA 01702; 508/424-0055; www.usbt.com

Concealed Deck Fastener

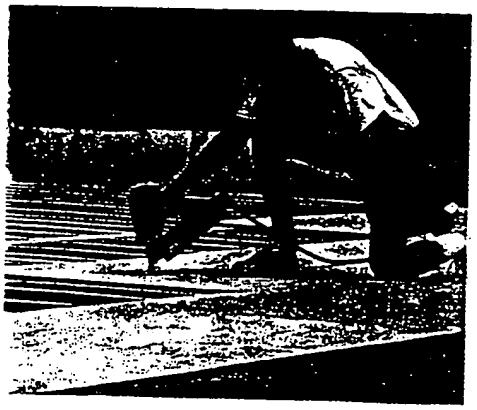
The best hidden decking fastener we've seen yet is called the *Eb-Ty*. The plastic connector is fastened to the joists from above with a screw angled at about 20° to the decking. The oval-shaped flanges, which fit into slots cut with a plate joiner at the point where each deck board crosses a joist, hold the deck boards tight to the framing and serve as positive stops to provide consistent spacing between boards. Designed by a custom home builder and remodeler, the Eb-Ty sells for about 40¢.

Contact: Eb-Ty, P.O. Box 414, Califon, NJ 07830; 888/438-3289; www.EBTY.com.

Engineered Subflooring

A new structural flooring panel called *Advantech* is designed to be more stable and more water-resistant than plywood. Available in 4-foot-wide tongue-and-groove sheets up to 16 feet long and in thicknesses ranging from 19/32 to 1⅛ inches, the four-layer oriented strandboard is bonded with an advanced, non-formaldehyde resin adhesive that the manufacturer guarantees will not need sanding due to moisture absorption. The homogenous material has no voids or knots, will not delaminate, and comes with a 50-year guarantee against defects.

Contact: Huber Engineered Woods, 10925 David Taylor Dr., Suite 300, Charlotte, NC 28262; 800/933-9220; www.huberwood.com.



CBTC EXPO
PROGRAM GUIDE

a companion to JLC's:
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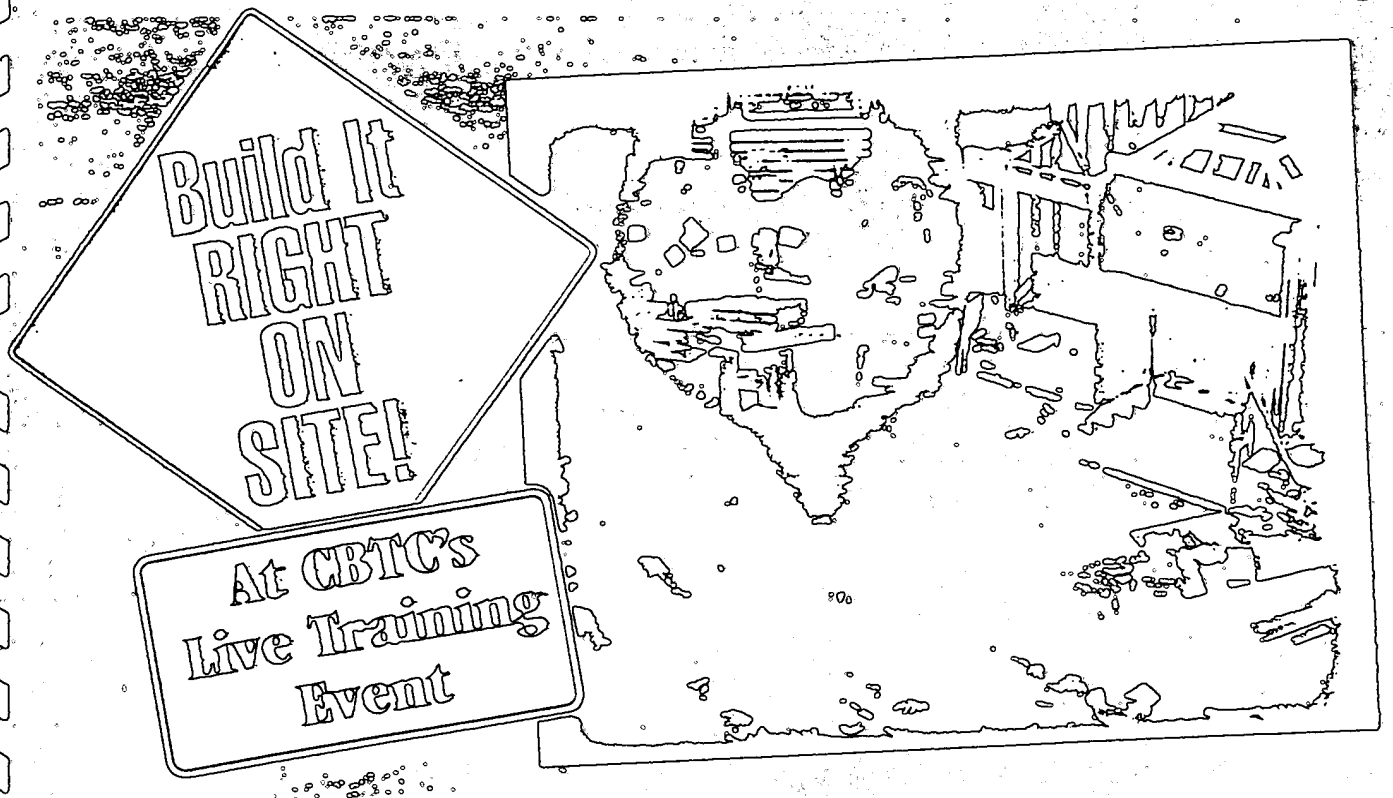

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Construction Innovation Awards

CONSTRUCTION INNOVATION A*W*A*R*D*S

The editors at JLC have chosen these innovative and efficient tools and products for their great promise for improving building practices. Manufacturers will be on hand to demonstrate their features and benefits and you're invited to try them out for yourself!

Cedar Breather — Benjamin Obdyke

This ⅜" thick nylon matrix creates a virtual "rain screen" that has been shown to reduce moisture problems that can lead to splitting, rot, and paint failures.

Eb-Ty Deck Tie — Eberle Brothers, Inc.

This hidden deck fastener is perhaps the best we've seen to date. The anchor is fastened with a single screw driven at an angle, providing a tight lock for deck boards.

Millibar NN — New Necessities

Wrapped around building corners, across intersections, and over roofs, this material successfully meets code requirements for high-wind zones. Less expensive per house and faster to install than metal hardware.

Trex Decking — Trex Company LLC

A wood/plastic composite made from recycled materials. Trex is used for decking. Prices are comparable to treated lumber, and though it's heavier than wood, it doesn't crack, splinter, or shrink.

Icynene Spray Insulation — Icynene

This low-density foam serves as insulation, air barrier, and vapor retarder. Sprayed in a thin layer, the foam expands up to 100 times, is flexible and fills any voids it encounters.

Jamsill Door Guard — Jamsill

The Jamsill is a pre-made, multipart sill pan that installs directly on the rough sill, and can easily be expanded to fit wide openings.

Sawmate — Prazi USA

The Sawmate is a rip and cross-cutting guide that can be attached to all circular saws, including wormdrives. Can be used to guide plywood cuts over 24 inches wide.

RoboLaser — Toolz Ltd

This laser features a hand-held remote control that allows you to spin the beam to transfer elevations from one place to another. The RoboLaser is self-leveling when you get it to within 10%, accurate to ¼" over 100 feet.

Bammer — Porter-Cable Corporation

The Bammer is a cordless finish nailer that fires 15-gauge nails. It runs on a piezo-electric ignition, without a battery, and its nose-piece is adjustable, with a hex key located on the magazine.

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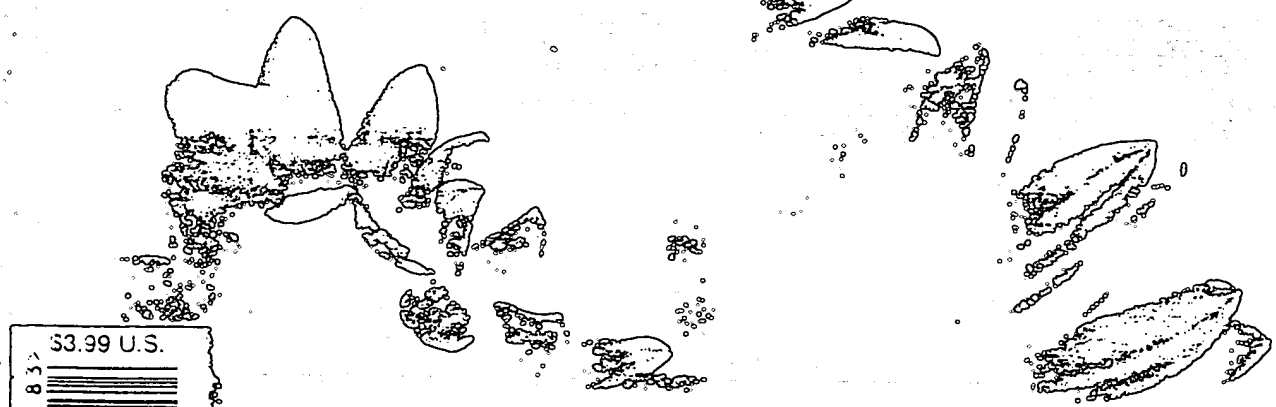

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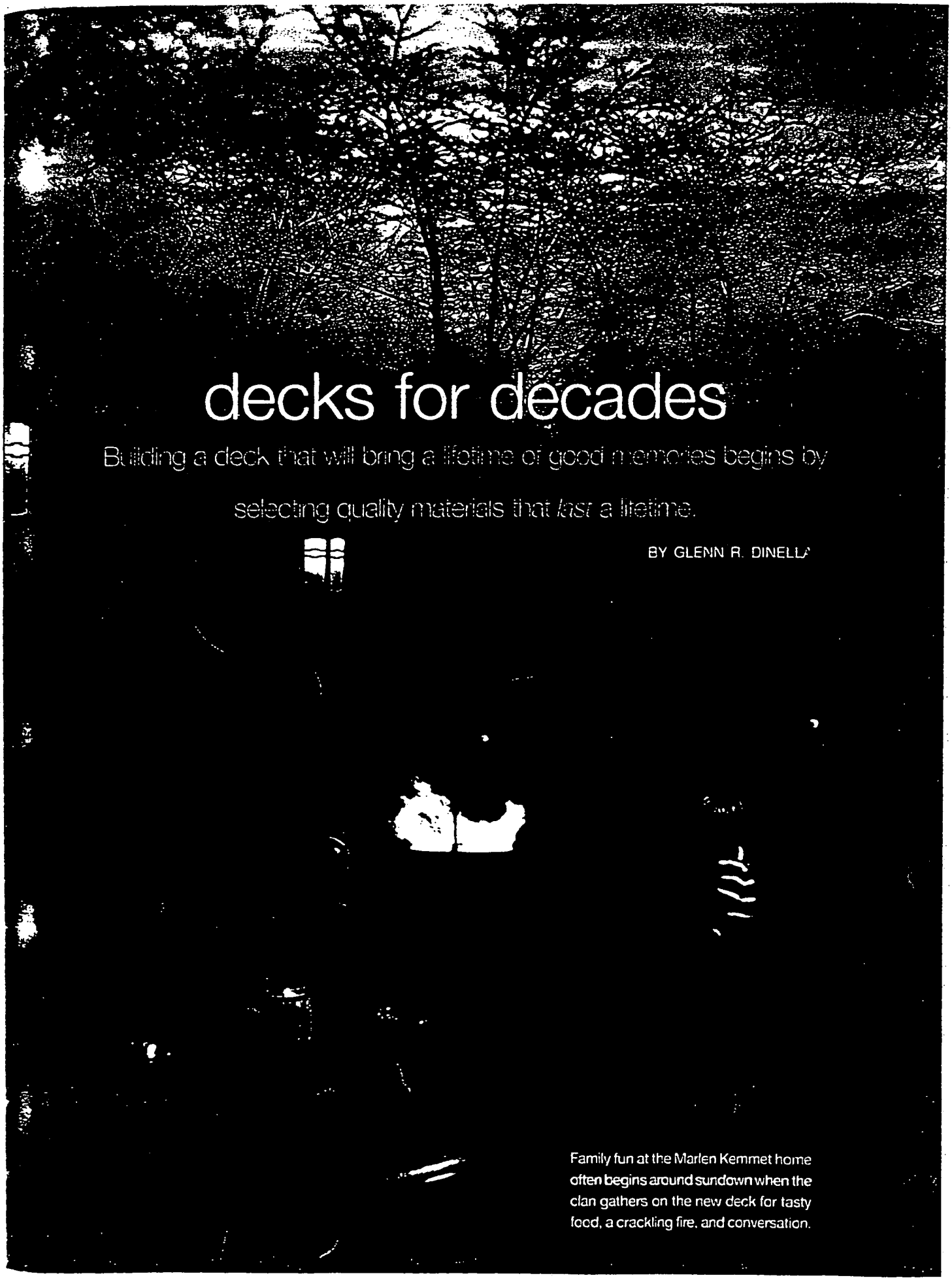


decks for decades

Building a deck that will bring a lifetime of good memories begins by selecting quality materials that *last* a lifetime.

BY GLENN R. DINELLA

Family fun at the Marlen Kemmet home often begins around sundown when the clan gathers on the new deck for tasty food, a crackling fire, and conversation.

Above: Wide platform steps create an inviting entrance to this satellite deck, built away from the house In the tradition of Greene and Greene, the scalloped cloud-lift patterns on the extended beams of th deck substructure *left* are also reflected in the rafters of Marlen's custom-built storage shed. **Opposite** A 6-foot-long ipe cabinet includes a work surface, stainless-steel grill, and loads of storage.

As the sun sets on one of the first crisp days of fall, a few of the brightest stars appear in the indigo band just above the horizon. At the home of Marlen and Shamrae Kemmet outside of Des Moines, the family gathers around lamplight and firelight on their new two-level deck. Fireside appeal is nothing new. It goes back, oh, about 15,000 years to the Paleolithic period when people first learned that this newly invented "fire" stuff sure made woolly mammoth burgers a whole lot tastier. But on this day in 1998 A.D., there's more to this special outdoor room than a hot fire and the tantalizing aroma of the chef's handiwork. The chef, deck builder, and Dad are one in the same—Marlen Kemmet, who also happens to be a senior editor at our sister publication *WOOD®* magazine. And this deck just happens to be his brainchild, decked out with ideas for the future.

Form follows function

Given Marlen's woodworking skills, he was under a bit of pressure to create something distinctive. His attention to detail, love of craftsmanship, and devotion to aesthetics not only necessitated an attractive deck, but called for one that would last a lifetime.

"The first step I took was to sit down with my wife and children and see what they wanted," Marlen says. "My wife wants to add a three-seasons room to the back of our house eventually, so a deck not attached to the house was a principal starting point.

They chose a site under the trees beside the house distant enough for privacy, yet close enough to be convenient. "The kids wanted a fire pit, and I wanted a place for the family to gather for outdoor meals," Marlen says. "I also wanted a project built like a piece of furniture—well-designed with lots of detail and built to last. I'd seen too many three- and four-year-old decks already in need of major repair."

Getting inspired

With a site in mind, Marlen searched for a building style. It didn't take long for him to turn to one of his favorites. In the early 1900s, brothers Charles Sumner and Henry Mather Greene of Pasaden

California, created some of the most finely crafted homes and furniture in Southern California by combining their love of design and woodwork. Marlen used the Greene brothers as inspiration for his deck.

"They were doing their work around the same time that Frank Lloyd Wright and the Mission style were becoming popular," Marlen says. "The three styles are somewhat similar, but the Greenes had a little more Oriental influence. They built some incredible furniture to go with the houses they did. One of their chairs today can go for $20,000 to $30,000."

This "architecture as art" perspective led to Marlen's unusual selection of wood. He built the substructure from standard pressure-treated pine timbers, but for the more visible elements, he selected ipe (pronounced EE-pay), the same material used on the boardwalks in Atlantic City and in Canal Park in Duluth, Minnesota. The durable rain-forest wood has a mahogany-like appearance, making it perfect for the furniture-and-art philosophy.

"It proved to be an excellent choice," Marlen says. "With no cracks, knots, or warping, there was virtually no scrap. Ipe is really on the cutting edge when it comes to wood decking. It's virtually indestructible. Ipe comes from South America, looks and works like mahogany, and is comparable in price to clear-heart redwood. Plus, with a Class A fire rating, it was ideal around the fire pit and grill."

Partly because the wood is so hard and partly because it's so beautiful, Marlen couldn't bring himself to pound nails into it. He kept his hammer holstered and used stainless-steel screws and thin plastic biscuits to bring things together.

"With the advent of several new fastening systems, it's no longer necessary to litter a deck surface with hundreds of screw holes," he says. "I chose EB-TY, a plastic, biscuitlike fastener that secures the edges of deck boards directly over a joist. When installed, the biscuits are nearly invisible and hold the edges of the boards down flush with each other." (See Deck Board Fastener Detail, *page 36.*)

The fire pit first

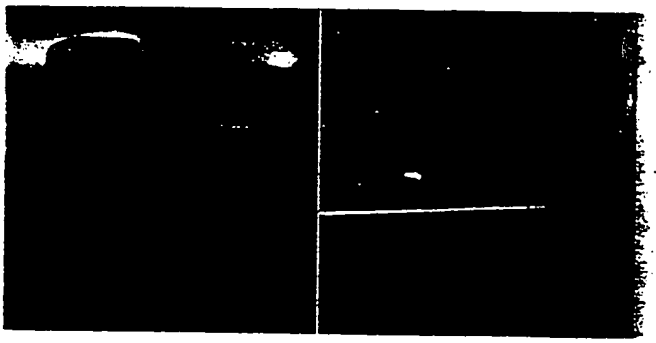
Although the kids take credit for the idea to integrate a fire pit with the deck, it was Marlen's creativity that made the idea flow. The project came together after he hit on the notion of building the basic bones of the pit from a 4-foot-diameter, 4-foot-deep manhole section purchased for about $180 from a local concrete products facility.

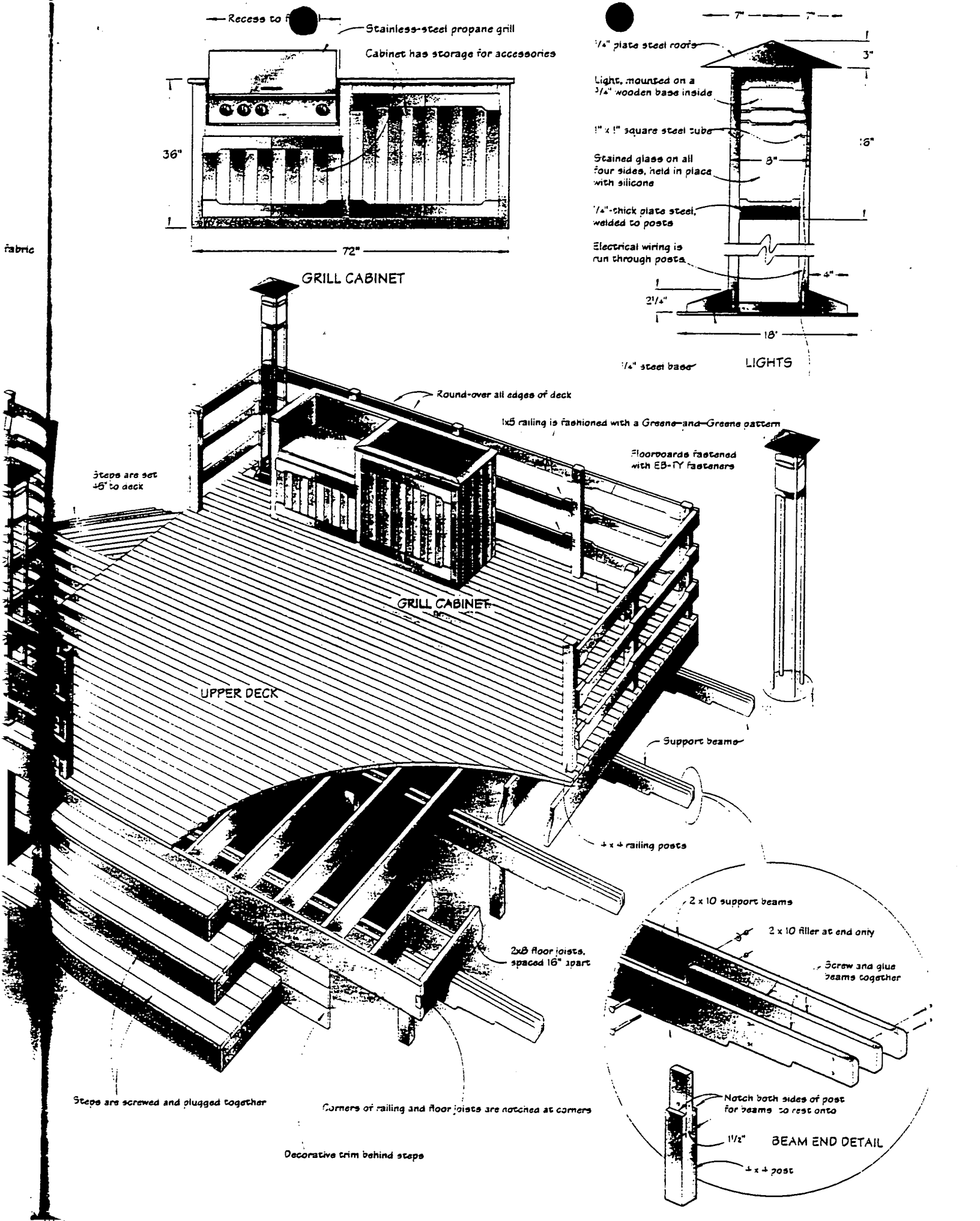
The concrete company delivered the 3,500-pound unwieldy monster, and a neighbor with a skid steer eased it into place after Marlen had checked and rechecked his measurements to ensure the top rim would rest 22 inches above the future deck floor. Once in place, it would not be easily adjusted. After it was positioned and leveled, he filled the pit to 22 inches from the top with pea gravel. Next, he lined

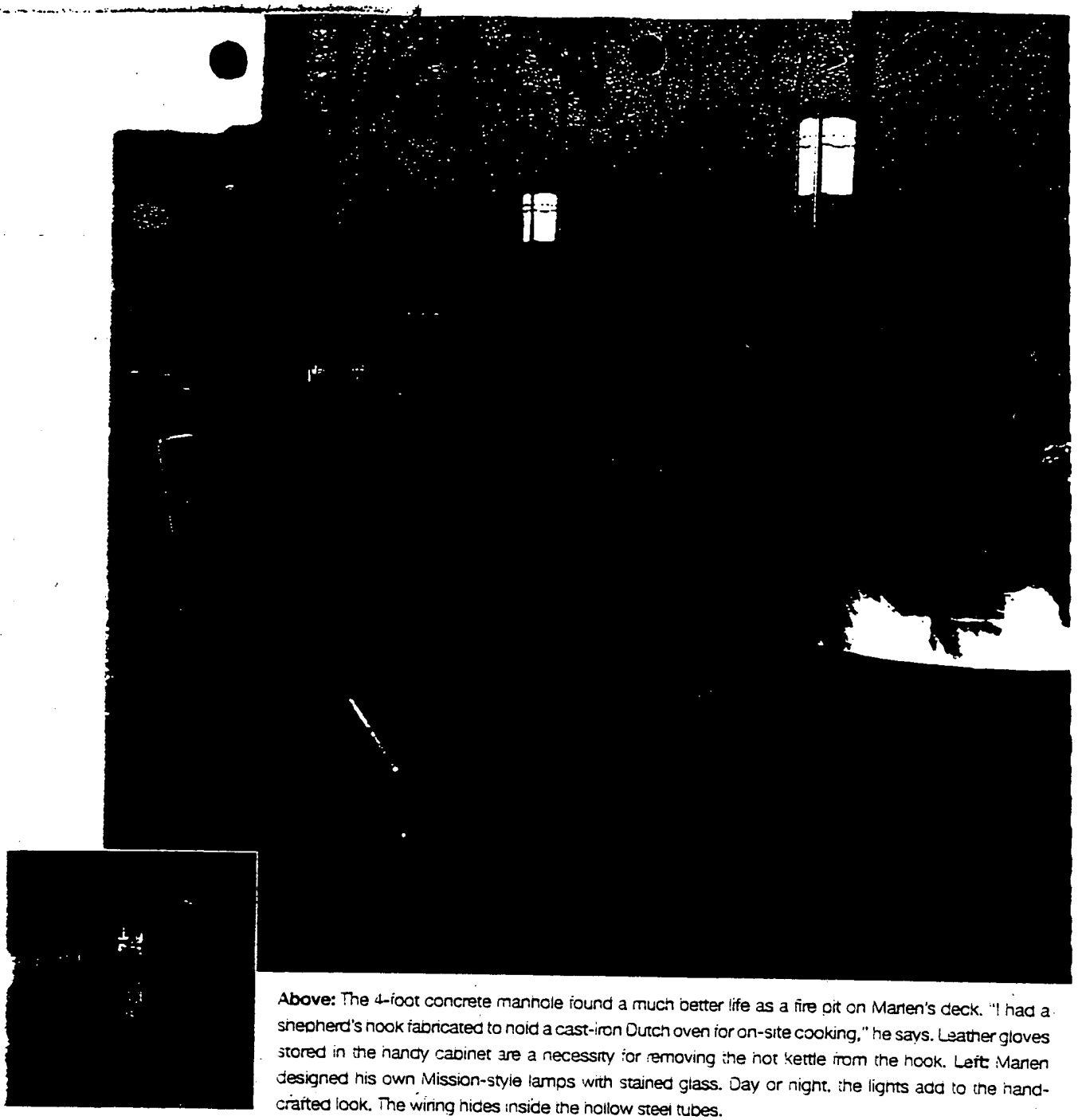
yippee for ipe

It's so dense, it doesn't float. It can't be penetrated with a nail. (Use a carbide-tip drill bit and screws.) And although it looks like beautiful furniture, it's so dense it doesn't burn. It's ipe. And here's more:

- Among Latin-speaking horticulturists, ipe is known as *Tabebuia* spp. and is a member of the *Lapacho* family.
- In the flooring industry, ipe is known as Brazilian walnut.
- Ipe first gained popularity in the United States in 1971, when Atlantic City began using it to construct boardwalks.
- In their ideal natural habitat, ipe trees can grow to 150 feet in height, with trunk diameters of 6 feet. Legally harvested trees average 1 meter in diameter.
- Weighing in at a hefty 69 pounds per cubic foot, ipe weighs twice as much as Southern pine (35 pounds).
- The retail price for ipe ranges from $3.45 per square foot to $3.68 per square foot.
- Ipe outlasts soft decking woods five to one, which translates to about 50 years. Even without preservatives, it is naturally resistant to termites, marine borers, and water, and it has the same fire rating as steel and concrete.
- The primary source of ipe in the United States is Timber Holdings Ltd. of Milwaukee, which says its trees are harvested from sustainably managed tropical forests in Brazil. All trees harvested by Timber Holdings Ltd. are independently certified to be produced by legally harvested methods. This means each felled tree receives a certificate from the Brazilian Department of Natural Resources, which does multiple checks on the trees before they are exported and also enforces reseeding or replanting programs.




Recess to f
Stainless-steel propane grill
Cabinet has storage for accessories
36"
72"
GRILL CABINET
7"
7"
1/4" plate steel roofs
3"
Light, mounted on a 3/4" wooden base inside
1" x 1" square steel tube
16"
Stained glass on all four sides, held in place with silicone
8"
1/4"-thick plate steel, welded to posts
Electrical wiring is run through posts
4"
2 1/4"
18"
1/4" steel base
LIGHTS
fabric
Round-over all edges of deck
1x5 railing is fashioned with a Greene-and-Greene pattern
Floorboards fastened with EB-TY fasteners
Steps are set 16" to deck
GRILL CABINET
UPPER DECK
Support beams
4 x 4 railing posts
2 x 10 support beams
2 x 10 filler at end only
Screw and glue beams together
2x8 floor joists, spaced 16" apart
Notch both sides of post for beams to rest onto
1 1/2"
BEAM END DETAIL
4 x 4 post
Steps are screwed and plugged together
Corners of railing and floor joists are notched at corners
Decorative trim behind steps



Above: The 4-foot concrete manhole found a much better life as a fire pit on Marlen's deck. "I had a shepherd's hook fabricated to hold a cast-iron Dutch oven for on-site cooking," he says. Leather gloves stored in the handy cabinet are a necessity for removing the hot kettle from the hook. **Left:** Marlen designed his own Mission-style lamps with stained glass. Day or night, the lights add to the hand-crafted look. The wiring hides inside the hollow steel tubes.

the inside of the structure with firebrick (the type used in home fireplaces) to prevent the concrete from becoming too hot or cracking. High-temperature flat black paint dresses the concrete enough to hide its original purpose. With the fire pit in place, Marlen could begin the task of building the deck around it.

He planned enough seating so the family—and friends—could all sit around the fire pit. The benches, about 3 feet back, are within marshmallow-roasting distance, but keep the kids safe from the heat. The benches are tilted 10 degrees for extra comfort.

Food and function

Though the fireside deck features seclusion and restfulness, the attached larger upper deck strikes a different mood. This hardworking area, accessible from two sides, includes the dining and cooking areas. But functional doesn't mean plain.

Marlen crafted an ipe cabinet for a cooking center, housing a stainless-steel grill, and plenty of storage for dinnerware and supplies. A work surface beside the grill has a Corian insert, which is easy to clean and holds up well under adverse weather. The cabinet also has an electrical outlet on one end for a slow-cooker, CD player, or other electronic devices.

As with every other part of this project, Marlen sweated the details.

"I chose a stainless-steel grill that until recently was available only to restaurants and professionals," he says. "This four-burner unit with convection-style

cooking is good enough not only to roast turkeys, chickens, and roasts without a rotisserie, but gentle enough to bake bread and pies." When not in use, the cabinet is protected with a canvas cover.

Mission-style light

A deck of this magnitude deserves more than daytime flings. Marlen planned plenty of stained-glass lighting to create an amber after-hours glow. Iron lamps stand at each of the deck corners, rising another 2 feet above the deck railing.

True to the style that first inspired his deck, Marlen's lamp designs incorporate the gently sloped roofs common to the Craftsman era and details frequently used by the Greenes. The posts are made of 1-inch square steel tubing; the lamp tops were fashioned from flat steel stock.

Custom-cut stained-glass panels diffuse the light and add to the ambience. The lamps on the deck have a steel plate base, while concrete secures three more off the deck. To protect the lamps, Marlen painted them with Hammerite, a tough, durable finish commonly used by machinery manufacturers. Applied with a roller, the paint curdles on the surface, leaving an orange-peel-textured appearance.

A quality finish

When it came time to protect the wood, Marlen began his homework with a trip to the federally funded Forest Products Laboratory in Madison, Wisconsin.

"Although almost any finish will look good for a few months, I wanted a finish to keep the deck looking good for years," he says. A thorough review of the track record of numerous finishes led him to select a quality penetrating oil.

"Most of the less expensive sealers just stay on the surface and break down fairly quickly. A penetrating oil is actually absorbed into the wood and does not build up on the surface in layers that can break down easily," he says. "To keep the rich color, I'll need to apply a fresh coat of finish each year. Left unfinished, ipe will weather to a Cape Cod gray or similar to an unfinished teak garden bench."

In the end, Marlen not only created a great deck, he crafted a piece of art that will provide the family with a gathering spot for years. Sure, it costs more than a basic model, but how can you place a monetary value on the memories that will be created on a solid-as-a-rock, pretty-as-a-picture, ipe deck? ❑

For Resources, see page 101.

extras from marlen

Above, from left: The scalloped support beams will extend 2 feet beyond the future deck. • The finished substructure measures 16x16 feet on top; 12x12¾ on the lower level. • Biscuit fasteners create a hardware-free look and help reduce warping. • Marlen cut ipe plugs from scrap wood to cover each counterbored screw hole.

Substructure with style

"I wanted the detailing to start with the post-and-beam substructure by extending the beams beyond the deck. To do this I notched the top end of my pressure-treated 4x4s, allowing the beams, in this case 2x10s, to sit on the shoulders of the notches, rather than be held with mechanical fasteners. I made the area between the shoulders exactly the thickness of a 2x10. Then, I glued and screwed an additional piece of 2x10 between the protruding end pieces; the three 2x10s stack together to look like a 4½x10 beam. I contoured this protruding end in an inverted cloud-lift pattern, which was popularized by Greene and Greene." (See Beam End Detail on diagram, *page 37.*)

Seamless boards with biscuits

"To start the decking, the first board is screwed down in the regular fashion, although for my deck, I counterbored the holes and plugged them. Next I used a biscuit cutter to slot the edge of the first deck board directly over the joist. I slid the plastic EB-TY biscuit into that slot, then drove a finish-head screw at a 45-degree angle through the biscuit fastener into the joist. After routing mating slots in the next board, I laid a bead of construction adhesive on the joist and slid the next board onto the biscuit. The final result is very smooth." (See Deck Board Fastener Detail on diagram, *page 36.*)

Fine-crafted rails

"To secure the railing, I drilled counterbored screw holes, used stainless-steel screws, and plugged all the holes. It's more time-consuming, but worth the effort to achieve that crafted furniture look without a single visible screw. Stainless-steel screws are harder than galvanized screws and won't stain wood black over time."

buying guide

For more information about the stories shown in this issue, contact the professionals and sources listed below. Be prepared to pay copying/shipping costs for some of the materials provided.

RESOURCES

AUTUMN APPRECIATION

Pages 20–28

Landscape architect: homeowner Susie Miller Hall.

For more information about grasses, consider *Taylor's Guide to Ornamental Grasses* edited by Roger Holmes and Frances Tenenbaum; Houghton Mifflin Co., 222 Berkley St., Boston, MA 02116; 800/225-3362; 1997; $19.95.

SIMPLY SUNFLOWERS

Pages 29–32

Container with dwarf-size sunflower—W. Atlee Burpee, 300 Park Ave., Warminster, PA 18974-0001; 800/888-1447.

Sunflower lantern—Gardener's Supply Co., 128 Intervale Rd., Burlington, VT 05401; 800/955-3370.

Sunflower arbor, trellises, garden ornaments—Rosebar metal garden art, 2064 Skagit City Rd., Mount Vernon, WA 98273; 360/445-2294. Also available through Ravenna Gardens, 2580 NE. University Village, Seattle, WA 98105; 206/729-7388.

Sunflower vase project excerpted with permission from *Fast Flower Arranging* by Jane Packer; D.K. Publishing, Inc., 95 Madison Ave., New York, NY 10016; 212/213-4800; 1998; $19.95.

For sunflower sources, consider:

W. Atlee Burpee, 300 Park Ave., Warminster, PA 18974-0001; 800/888-1447.

Johnny's Selected Seeds, 310 Foss Hill Rd., Albion, ME 04910; 207/437-4301.

Park Seed Co., 1 Parkton Ave., Greenwood, SC 29647-0001; 800/845-3369.

Seeds of Change, P.O. Box 15700, Santa Fe, NM 87506-5700; 888/762-7333.

Seed Savers Exchange, 3076 N. Winn Rd., Decorah, IA 52101; 319/382-5990.

DECKS FOR DECADES

Pages 33–42

Decking—Iron Woods, Timber Holdings, Ltd., 2400 W. Cornell St., Milwaukee, WI 53209; 414/445-8989.

Stain—Penofin, Performance Coatings, Inc., P.O. Box 1569, Ukiah, CA 95482; 707/462-3023; www.penofin.com.

Stainless-steel screws—McFeeley's, 1620 Wythe Rd., P.O. Box 11169, Lynchburg, VA 24506-1169; 800/443-7937.

Deck-fastening system for ¼-inch stock—EB-TY, P.O. Box 414, Califon, NJ 07830; 888/438-3289; www.EB-TY.com. **Gas grill**—Ironworks, P.O. Box 578, Stockbridge, MI 49285; 517/851-3889. **Lanterns**—custom made.

The Certified Forest Product Council publishes a directory for recycled wood. Call 503/590-6600 or send e-mail to cfpc@ix.netcom.com. Other sources:

Heritage Vinyl Products, 1576 Magnolia Dr., Macon, MS 39341; 800/473-3623.

Kodiak, Inc., P.O. Box 9158, Memphis, TN 38109-0158; 901/344-5353.

Master Mark, P.O. Box 662, Albany, MN 56307; 800/535-4838.

Metro Plastics, Inc., 2916 107th St., S. Tacoma, WA 98444; 800/676-4091.

Nebraska Plastics, P.O. Box 45, Cozad, NE 69130; 800/445-2887.

Recycled Plastics Marketing, Inc., 2829 152nd Ave., NE, Redmond, WA 98052; 800/867-3201.

Resource Woodworks, Inc., 627 E. 60th St., Tacoma, WA 98404; 253/474-3757.

Rumber Materials, Inc., 3420 Executive Center Dr., Suite 200, Austin, TX 78731; 512/794-8473.

SmartDeck, 2600 W. Roosevelt Rd., Chicago, IL 60608; 888/733-2546.

Trex, 20 S. Cameron St., Winchester, VA 22601; 800/289-8739.

U.S. Plastic Lumber, 2300 Glades Rd., Suite 440, W. Boca Raton, FL 33431; 800/653-2784.

FAMILY-STYLE LANDSCAPE

Pages 43–48

Landscape designer: Chris Hecht, 6320 Broadway Terr., Oakland, CA 94628; 510/654-9994. ***Plant designer:*** Lura DeOme, Earthmoods, 728 San Carlos, Albany, CA 94706; 510/526-1140. ***Window-box designer:*** Arleta Chang, Jarvis Architects, 1889 Alcatraz Ave., Berkeley, CA 94703; 510/654-6755. **White chairs**—Smith & Hawken, 2 Arbor Ln., P.O. Box 6900, Florence, KY 41022-6900; 800/776-3336.

THE GREAT PUMPKIN

Pages 49–52

For more information, consider:

Atlantic Pumpkin Growers' Association, P.O. Box 901, Windsor, Nova Scotia B0N 2T0 Canada; 902/798-2728.

International Pumpkin Association, Inc., 1606 Union St., San Francisco, CA 94123; 415/346-4446.

New England Pumpkin Growers Association, 445 Middlesex Ave., Wilmington, MA 01887.

The Perfect Pumpkin by Gail Damerow; Storey Communications, Inc., Schoolhouse Road, Pownal, VT 05261; 800/441-5700; 1997; $12.95.

Stonycreek Farm, Loren Schmierer, 11366 S.R. 38, E. Noblesville, IN 46060; 317/773-3344.

World Pumpkin Confederation, 14050 Rte. 62, Collins, NY 14034; 716/532-5995.

For pumpkin seeds, consider:

Hollar Seeds, P.O. Box 106, Rocky Ford, CO 81067-0167; 719/254-7411.

Jung Seed Co., 335 S. High St., Randolph, WI 53957; 800/297-3123.

Park Seed Co., 1 Parkton Ave., Greenwood, SC 29647-0001; 800/845-3369.

PineTree Garden Seeds, Box 3000, New Gloucester, ME 04260; 207/926-3400.

Territorial Seed, P.O. Box 157, Cottage Grove, OR 97424-0061; 541/942-9547.

Construction Innovation Award

The editors and associates of The Journal of Light Construction

present this award to

EB-TY

in recognition of their innovative, high quality

hidden deck fastener

EB-TY.

THE JOURNAL OF LIGHT CONSTRUCTION

1998

Construction Innovation Awards

The editors of *The Journal of Light Construction* have chosen a selection of innovative and efficient tools and products showcase at CBTC, and have given them their own showcase - the Construction Innovation Awards. The intent of this award is to bring attention to the most promising new technologies that we believe stand a good chance of improving building practices.

Come take the tour, and get a hands-on look at these award-winning tools and products. Manufacturers will be on location to demonstrate the products, and you're invited to try them out for yourself.

Blue Maxx
AAB Building Systems
The Blue Maxx System is representative of this new foundation category that allows builders and remodelers to set their own concrete forms.
Booth #13

Cedar Breather
Benjamin Obdyke
This 3/8"-thick nylon matrix creates a virtual "rain screen" that has been shown to reduce moisture problems that can lead to warping, splitting, rot, and paint failures.
Booth #12

Mungo Nylon Anchor
Driltec
Nylon anchors such as the Mungo have proven stronger and more durable for attaching fixtures to tile, concrete, and masonry than typical plastic anchors.
Booth #4

Deck Tie
Eb-Ty
This hidden deck fastener is perhaps the best we've seen to date. The anchor is fastened with a single screw driven at an angle, providing a tight lock for deck boards.
Booth #3

A-Square
Ercon
Used for quick layout, or to evaluate the squareness of any building corner, the A-Square provides an instant, accurate reference.
Booth #8

Millibar NN
New Necessities
Wrapped around building corners, across intersections, and over roofs, this material successfully meets code requirements for high-wind zones. Less expensive per house and faster to install than metal hardware.
Booth #11

Air-Admittance Valve
Studor
Since the air flows only one way through these plumbing vent valves, sewer gases can't come back into the house.
Booth #6

Trex
Decking
A wood/plastic composite made from recycled materials, Trex is used for decking. Prices are comparable to treated lumber, and though it's heavier than wood, it doesn't crack, splinter, or shrink.
Booth #9

Spray Insulation
Icynene
This low-density foam serves as insulation, air barrier, and vapor retarder. Sprayed in a thin layer, the foam expands up to 100 times, is flexible and fills any voids it encounters.
Booth #1

Jamsill Door Guard
Jamsill
The Jamsill is a pre-made, multi-part sill pan that installs directly on the rough sill, and can easily be expanded to fit wide openings
Booth #7

Cordless Jig Saw
Milwaukee Electric Tool
This 12-volt saw has a keyless Quik-Lok blade changing system, an anti-splintering device, and four levels of orbital action.
Booth #14

Cordless Trim Saw
Panasonic Industrial
The 5 3/8-inch, 12-volt Panasonic is light, has an easily gripped handle, and a simple safety switch. With its super-thin 3/64-inch blade, this little saw can make about 75 cuts through a 2x4 on a single charge.
Booth #15

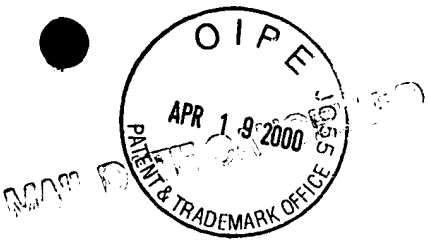
Sawmate
Prazi USA
The Sawmate is rip and cross-cutting guide that can be attached to all circular saws, including wormdrives. Can be used to guide plywood cuts over 24 inches wide.
Booth #2

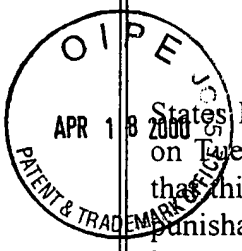
RoboLaser
Toolz Ltd
This laser features a hand-held remote control that allows you to spin the beam to transfer elevations from one place to another. The RoboLaser is self-leveling when you get it to within 10%, accurate to 1/8 inch over 100 feet.
Booth #5

Cordless Finish Nailers
Two companies offer power finish nailers that are free from the hassles of pulling a hose around the site.

Paslode
Impulse IM250 II
This well-balanced cordless finish nailer shoots a full-range of 16-gauge nails from 3/4 to 2 inches long. Depth of drive is controlled with an adjustable tip, and the IM250 II runs on a 6-volt ni-cad battery.
Booth #16

Porter-Cable
Bammer
The Bammer is a cordless finish nailer that fires 15-gauge nails. It runs on a piezo-electric ignition, without a battery, and its nosepiece is adjustable, with a hex key located on the magazine.
Booth #10





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